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Leu Lys Ala Glu Leu Glu Arg Lys Lys Gln Arg Leu Ala Gln Ile Arg
7 12 17 22

gag gaa aag aag aga aaa gaa gaa gaa agg aaa aaa aaa gaa aca gac 328
Glu Glu Lys Lys Arg Lys Glu Glu Glu Arg Lys Lys Lys Glu Thr Asp
23 28 33 38

cag aag aag gaa gct gtt gct cct gtg caa gaa gaa tca gat ctt gaa 376
Gln Lys Lys Glu Ala Val Ala Pro Val Gln Glu Glu Ser Asp Leu Glu
39 44 49 54

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Lys Lys Arg Arg Glu Ala Glu Ala Leu Leu Gln Ser Met Gly Leu Thr
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Pro Glu Ser Pro Ile Val Pro Pro Pro Met Ser Pro Ser Ser Lys Ser
71 76 81 86

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87 92 97 102

gtg gga tct agg acg ctg cat tgg gat aca gat cca tca gtt ctt cag 568
Val Gly Ser Arg Thr Leu His Trp Asp Thr Asp Pro Ser Val Leu Gln
103 108 113 118

ctt cac tca gat tcc gat ttg gga cga gga cct att aaa ctt gga atg 616
Leu His Ser Asp Ser Asp Leu Gly Arg Gly Pro Ile Lys Leu Gly Met
119 124 129 134

gct aaa atc acg caa gtc gac ttt cct cct cga gaa att gtc acg tat 664
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135 140 145 150

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Thr Lys Glu Thr Gln Thr Pro Val Met Ala Gln Pro Lys Glu Asp Glu
151 156 161 166

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167 172 177 182	
gaa gag aaa act tta aag aaa gat gag gaa aat gat agt aaa gct ccc	808
Glu Glu Lys Thr Leu Lys Lys Asp Glu Glu Asn Asp Ser Lys Ala Pro	
183 188 193 198	
cct cat gag ctg act gaa gaa gaa aag caa caa atc ttg cac tct gag	856
Pro His Glu Leu Thr Glu Glu Glu Lys Gln Gln Ile Leu His Ser Glu	
199 204 209 214	
gaa ttt tta agt ttc ttt gac cat tct aca aga att gta gaa aga gct	904
Glu Phe Leu Ser Phe Phe Asp His Ser Thr Arg Ile Val Glu Arg Ala	
215 220 225 230	
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Leu Ser Glu Gln Ile Asn Ile Phe Phe Asp Tyr Ser Gly Arg Asp Leu	
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Glu Asp Lys Glu Gly Glu Ile Gln Ala Gly Ala Lys Leu Ser Leu Asn	
247 252 257 262	
cga caa ttt ttt gac gaa cgt tgg tca aag cat cgg gtg gtt agt tgt	1048
Arg Gln Phe Phe Asp Glu Arg Trp Ser Lys His Arg Val Val Ser Cys	
263 268 273 278	
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Leu Asp Trp Ser Ser Gln Tyr Pro Glu Leu Leu Val Ala Ser Tyr Asn	
279 284 289 294	
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Asn Asn Glu Asp Ala Pro His Glu Pro Asp Gly Val Ala Leu Val Trp	
295 300 305 310	
aat atg aaa tac aaa aaa act acc cca gag tat gtg ttt cac tgc cag	1192
Asn Met Lys Tyr Lys Lys Thr Thr Pro Glu Tyr Val Phe His Cys Gln	
311 316 321 326	
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Ser Ala Val Met Ser Ala Thr Phe Ala Lys Phe His Pro Asn Leu Val	
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Thr His Pro Val Tyr Cys Val Asn Val Val Gly Thr Gln Asn Ala His	
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423	428 433 438	
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439	444 449 454	
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Trp Thr Thr Lys Asn	Asn Lys Pro Leu Tyr Ser Phe Glu Asp Asn Ala	
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gac tat gtt tat gat	gtt atg tgg tca cct acc cac cca gcc ctg ttt	1816
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Ala Cys Val Asp Gly	Met Gly Arg Leu Asp Leu Trp Asn Leu Asn Asn	
535	540 545 550	
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567	572 577 582	
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583	588 593 598	
gtt ccc cgc aat gat	gaa tgg gca cgg ttt ggc cga aca ctt gca gaa	2056
Val Pro Arg Asn Asp	Glu Trp Ala Arg Phe Gly Arg Thr Leu Ala Glu	
599	604 609 614	
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Ile Asn Ala Asn Arg	Ala Asp Ala Glu Glu Glu Ala Ala Thr Arg Ile	

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Pro Ala *				
631				
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tacagttggt gttgggggct taggcgaggg acgttaccgg gaagttgcag gcgggaggac	180
tcttcccat ccagtcacct gacaggtcac aaac	232
atg tca gac aaa agt gaa	
Met Ser Asp Lys Ser Glu	
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tta aag gct gag ttg gaa cgt aag aag cag cga ctg gcc caa atc aga	280
Leu Lys Ala Glu Leu Glu Arg Lys Lys Gln Arg Leu Ala Gln Ile Arg	
7 12 17 22	
gag gaa aag aag aga aaa gaa gaa gaa agg aaa aaa aaa gaa aca gac	328
Glu Glu Lys Lys Arg Lys Glu Glu Glu Arg Lys Lys Lys Glu Thr Asp	
23 28 33 38	
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Gln Lys Lys Glu Ala Val Ala Pro Val Gln Glu Glu Ser Asp Leu Glu	

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Pro Glu Ser Pro Ile Val Pro Pro Pro Met Ser	Pro Ser Ser Lys Ser			
71	76 81 86			
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87	92 97 102			
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Val Gly Ser Arg Arg Gly Pro Ile Lys Leu Gly Met	Ala Lys Ile Thr			
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Gln Val Asp Phe Pro Pro Arg Glu Ile Val Thr Tyr	Thr Lys Glu Thr			
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Asp Val Val Ala Pro Lys Pro Pro Ile Glu Pro	Glu Glu Glu Lys Thr			
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Leu Lys Lys Asp Glu Glu Asn Asp Ser Lys Ala	Pro Pro His Glu Leu			
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Gly Glu Ile Gln Ala Gly Ala Lys Leu Ser Leu	Asn Arg Gln Phe Phe			
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Asp Glu Arg Trp Ser Lys His Arg Val Val Ser	Cys Leu Asp Trp Ser			
247	252 257 262			
tct cag tat ccg gag tta ctc gtg gct tcc tat	aac aac aat gaa gat	1048		
Ser Gln Tyr Pro Glu Leu Leu Val Ala Ser Tyr	Asn Asn Asn Glu Asp			
263	268 273 278			

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Ser Ala Thr Phe Ala Lys Phe His Pro Asn Leu Val Val Gly Gly Thr	
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tat tca ggc caa att gtg ctt tgg gat aac cgt agc aat aaa aga act	1240
Tyr Ser Gly Gln Ile Val Leu Trp Asp Asn Arg Ser Asn Lys Arg Thr	
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cca gtg caa aga act cca ctg tca gca gct gca cac aca cac cct gta	1288
Pro Val Gln Arg Thr Pro Leu Ser Ala Ala Ala His Thr His Pro Val	
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Tyr Cys Val Asn Val Val Gly Thr Gln Asn Ala His Asn Leu Ile Ser	
359 364 369 374	
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Ile Ser Thr Asp Gly Lys Ile Cys Ser Trp Ser Leu Asp Met Leu Ser	
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Gly Ile His Cys His Ala Ala Val Gly Ala Val Asp Phe Ser His Leu	
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Tyr Val Thr Ser Ser Phe Asp Trp Thr Val Lys Leu Trp Thr Lys	
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gat gtt atg tgg tca cct acc cac cca gcc ctg ttt gcc tgt gtg gat	1768
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Gly Met Gly Arg Leu Asp Leu Trp Asn Leu Asn Asn Asp Thr Glu Val	
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Pro Thr Ala Ser Ile Ser Val Glu Gly Asn Pro Ala Leu Asn Arg Val	
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Met Lys Gln Met Arg Glu Glu Gln Gln Arg Arg Arg Leu Val Glu Thr						
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Lys Arg Asn Arg Glu Ile Ala Gln Leu Lys Lys Glu Gln Arg Arg Gln						
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Glu Phe Gln Ile Arg Ala Leu Glu Ser Gln Lys Arg Gln Gln Glu Met						
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Val Leu Arg Arg Lys Thr Gln Glu Val Ser Ala Leu Arg Arg Leu Ala						
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Met Leu Asp Ser Gly Ala Glu Val Ser Ala Ser Thr Thr Ser Ser Glu						
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Ala Glu Ser Gly Ala Arg Ser Val Ser Ser Ile Val Arg Gln Trp Asn						
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217 222 227 232	
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Gln Glu Asn Gly Tyr Ala Ser Thr Asp Glu Glu Ile Ser Glu Phe Ser	
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gac gat ttc aag ttc	aag agc gag ccc aaa ctg tct gcc caa atg aaa	1803
Asp Asp Phe Lys Phe	Lys Ser Glu Pro Lys Leu Ser Ala Gln Met Lys	
377	382 387 392	
gct gtg tcg gct gag	tgc ctg ggc ccc cca ctg gat atc tcc acc aag	1851
Ala Val Ser Ala Glu	Cys Leu Gly Pro Pro Leu Asp Ile Ser Thr Lys	
393	398 403 408	
aac atc acc aag tcc	ctg gcc tcc ctc gtt gag atc aaa gag gac gga	1899
Asn Ile Thr Lys Ser	Leu Ala Ser Leu Val Glu Ile Lys Glu Asp Gly	
409	414 419 424	
gtg ggc ttc tct gtc	cga gac ccc tat tac cgg gac agg gtc tcg cgc	1947
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Val Thr Asn Glu Gly Leu Gly Leu Thr Thr	Thr Ala Ser Gly Thr Asp			
856	861	866	871	
atc tct tct aat agt cta aaa gat tgt ctt cct	aaa tca gca caa ctt	2994		
Ile Ser Ser Asn Ser Leu Lys Asp Cys Leu Pro	Lys Ser Ala Gln Leu			
872	877	882	887	
ttg aaa tct gtt ttt gtg aaa aat gtt ggt tgg	gct aca cag tta act	3042		
Leu Lys Ser Val Phe Val Lys Asn Val Gly Trp	Ala Thr Gln Leu Thr			
888	893	898	903	
agt gga gct gtg tgg gtt cag ttt aat gat ggg	tcc cag ttg gtt gtg	3090		
Ser Gly Ala Val Trp Val Gln Phe Asn Asp Gly	Ser Gln Leu Val Val			
904	909	914	919	
cag gca gga gtg tct tct atc agt tat acc tca	cca aat ggt caa aca	3138		
Gln Ala Gly Val Ser Ser Ile Ser Tyr Thr Ser	Pro Asn Gly Gln Thr			
920	925	930	935	
act agg tat gga gaa aat gaa aaa tta cca gac	tac atc aaa cag aaa	3186		
Thr Arg Tyr Gly Glu Asn Glu Lys Leu Pro Asp	Tyr Ile Lys Gln Lys			
936	941	946	951	
tta cag tgt ctg tct tcc atc ctt ttg atg ttt	tct aat ccg act cct	3234		
Leu Gln Cys Leu Ser Ser Ile Leu Leu Met Phe	Ser Asn Pro Thr Pro			
952	957	962	967	
aat ttt cat tga tta aaactccttt cagacatata	agtttaataa ataacttttt	3289		
Asn Phe His *				
968				
tgttgacttt caagtaaagt gatttttttt aatttacata	aaagtcttca gaaagccttt	3349		
ctatgaaaga attttaacct ataatgtaaa ggatgtattc	tgagagaaca aagcagaatg	3409		
aaacttgagt cacttactaa atatagtgga tataaaatag	aacacctgac tttgctctta	3469		
gaccataacc cccgaactta ctatgttcat atatttgtat	tgaacaatct tttaaaagca	3529		
aaaatgtaaa tgatgtgtag tttatttgtg cttttattgt	tttcctgcg tctcagacat	3589		
gttgagaatc atggacaaaa cctgctggaa ttttgaatt	tttgaagatg taaataatgt	3649		
gtatttatgt tataagtaac atatgtaaac atgtatattt	gttttatatt tatttttcta	3709		
acaccagtgt ctgatgaaac atttttgcaa atgcatttta	taaaaaata aatatagtga	3769		
taagttacat tatcttttga ttcattttaat taaatactta	tttttaaata acttaccagt	3829		
aaactcactt tttaaatttt gttgcctgtt gaggagccaa	ttaaatttta aatattaatt	3889		
ttgcaaagt taaatacatt gtttctctat tatctgaaaa	aaaaaaaa	3937		

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 <213> Homo sapiens

<220>
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 gcggtcgcct ggccgttggtc attgtttctc cgctgacact ttttcaagcc ccaggctggc 120
 tgcttcagaa gcccctgacc cc atg gag gag tgg gac gtg cca cag atg aag 172
 Met Glu Glu Trp Asp Val Pro Gln Met Lys
 1 5
 aaa gag gtg gag agc ctt aag tac cag ctg gcc ttc cag cgg gag atg 220
 Lys Glu Val Glu Ser Leu Lys Tyr Gln Leu Ala Phe Gln Arg Glu Met
 11 16 21 26
 gcg tcc aag acc atc ccc gag ctg ctg aag tgg atc gag gac ggg atc 268
 Ala Ser Lys Thr Ile Pro Glu Leu Leu Lys Trp Ile Glu Asp Gly Ile
 27 32 37 42
 ccc aag gac ccc ttc ctg aac ccc gac ctg atg aag aac aac cca tgg 316
 Pro Lys Asp Pro Phe Leu Asn Pro Asp Leu Met Lys Asn Asn Pro Trp
 43 48 53 58
 gtg gaa aag ggc aaa tgc acc atc ctg tga g ccccgacccc ggcccctctc 367
 Val Glu Lys Gly Lys Cys Thr Ile Leu *
 59 64
 acaccatcct gtgagaccac gcccggtccc actctcacca tcttgaaga atgtgccag 427
 gcccaactcaa ttcattgttt gagttcccat ttccagggtt atattttcat cattctgttg 487
 agctctatgt cgggtgctatt tatattaatt tgtgagtttg 527

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 <213> Homo sapiens

<220>
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 Met Asn Ala Leu Ala Ser Leu Gly Pro Gly Asp Arg Leu Ser Val Ala

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cag cgc ctg agc atc cac tta cag gac act cac ctg cag agg tac cct			96
Gln Arg Leu Ser Ile His Leu Gln Asp Thr His Leu Gln Arg Tyr Pro			
17	22	27	32
gag cac cgt tgt ggg tta agg gac ttt ctc ccc tct gga aac agt cct			144
Glu His Arg Cys Gly Leu Arg Asp Phe Leu Pro Ser Gly Asn Ser Pro			
33	38	43	48
gag aag ctg aag gtc ttg ggg gcc tct cac caa atg tct ttg gga gat			192
Glu Lys Leu Lys Val Leu Gly Ala Ser His Gln Met Ser Leu Gly Asp			
49	54	59	64
gcc caa gag agc tgc tcc atg cgc tgt ggc gcc ctg gac agg cca tgt			240
Ala Gln Glu Ser Cys Ser Met Arg Cys Gly Ala Leu Asp Arg Pro Cys			
65	70	75	80
tcc tgc cac ccg acg tgc tcc ggc ctt ggt acc tgc tgc ttg gat ttc			288
Ser Cys His Pro Thr Cys Ser Gly Leu Gly Thr Cys Cys Leu Asp Phe			
81	86	91	96
cag gac ttc tgc ctg gag ata ttg ccc tac tca gtc tcc atg atg ggc			336
Gln Asp Phe Cys Leu Glu Ile Leu Pro Tyr Ser Val Ser Met Met Gly			
97	102	107	112
ggc aag gac ttt gtg gtg cgg cac ttc aag atg tcc agc ccc aca gac			384
Gly Lys Asp Phe Val Val Arg His Phe Lys Met Ser Ser Pro Thr Asp			
113	118	123	128
acc agc cca cag gtt tgc atg cca cag gag agc atc cag acc ctc ggc			432
Thr Ser Pro Gln Val Cys Met Pro Gln Glu Ser Ile Gln Thr Leu Gly			
129	134	139	144
cat gtg gac tcc tcc ggg caa gtg cac ttc gtg tgc ccc ctg ctc tat			480
His Val Asp Ser Ser Gly Gln Val His Phe Val Ser Pro Leu Leu Tyr			
145	150	155	160
gag agc ggc cac gtc ccc ttc acc atc tca ctg gac gat ggc cac tcc			528
Glu Ser Gly His Val Pro Phe Thr Ile Ser Leu Asp Asp Gly His Ser			
161	166	171	176
ttc cct cgt gcg ggc act tgg ctg gct gtg cac ccc aac aaa gtg ttg			576
Phe Pro Arg Ala Gly Thr Trp Leu Ala Val His Pro Asn Lys Val Leu			
177	182	187	192
atg aag gag aag agt gag ttg atg aac gag atg cat tgg caa tac tac			624
Met Lys Glu Lys Ser Glu Leu Met Asn Glu Met His Trp Gln Tyr Tyr			
193	198	203	208
ggc acc gcc aac acc tca ggc aac ctc agc ctg acc tgg cac gtt gag			672
Gly Thr Ala Asn Thr Ser Gly Asn Leu Ser Leu Thr Trp His Val Glu			
209	214	219	224
gcg ctg ccc aca cag aca cca tca agc tgt ggg gct atg agg aga cag			720
Ala Leu Pro Thr Gln Thr Pro Ser Ser Cys Gly Ala Met Arg Arg Gln			
225	230	235	240

gtg	aga	aag	ctg	gac	cgg	gag	agg	gta	gga	gct	tgg	tgg	aga	ggc	gcc	768
Val	Arg	Lys	Leu	Asp	Arg	Glu	Arg	Val	Gly	Ala	Trp	Trp	Arg	Gly	Ala	
241					246					251					256	
tgg	gcc	aga	cat	ccg	cgg	cag	gag	gcg	ggg	gaa	cat	gcc	aag	agg	cgg	816
Trp	Ala	Arg	His	Pro	Arg	Gln	Glu	Ala	Gly	Glu	His	Ala	Lys	Arg	Arg	
257					262					267					272	
aag	ggg	cac	gcg	gag	acc	ccc	agg	ggg	cgc	cgg	aag	ggg	cgc	gcc	ggg	864
Lys	Gly	His	Ala	Glu	Thr	Pro	Arg	Gly	Arg	Arg	Lys	Gly	Arg	Ala	Gly	
273					278					283					288	
cgg	tcg	gcg	gcg	gcc	gtt	ggc	gag	ctg	agg	cct	gcc	agg	cga	agt	ctg	912
Arg	Ser	Ala	Ala	Ala	Val	Gly	Glu	Leu	Arg	Pro	Ala	Arg	Arg	Ser	Leu	
289					294					299					304	
gag	acc	agc	cgg	gcc	gcg	gcc	gca	atg	gcc	aag	gac	tcg	ccc	agc	ccc	960
Glu	Thr	Ser	Arg	Ala	Ala	Ala	Ala	Met	Ala	Lys	Asp	Ser	Pro	Ser	Pro	
305					310					315					320	
ttg	ggc	gcg	tcg	ccc	aag	aag	ccg	ggc	tgc	tcc	agc	ccg	gcg	gcg	gca	1008
Leu	Gly	Ala	Ser	Pro	Lys	Lys	Pro	Gly	Cys	Ser	Ser	Pro	Ala	Ala	Ala	
321					326					331					336	
gtg	ctg	gag	aac	cag	agg	cgg	gag	ctg	gag	aag	cta	cgg	gcg	gag	ctg	1056
Val	Leu	Glu	Asn	Gln	Arg	Arg	Glu	Leu	Glu	Lys	Leu	Arg	Ala	Glu	Leu	
337					342					347					352	
gag	gcg	gag	cgg	gca	ggc	tgg	cgg	gcg	gaa	cgg	cgg	cgc	ttc	gct	gcc	1104
Glu	Ala	Glu	Arg	Ala	Gly	Trp	Arg	Ala	Glu	Arg	Arg	Arg	Phe	Ala	Ala	
353					358					363					368	
cgg	gag	cgc	cag	ctg	cgt	gag	gag	gcc	gag	cgg	gag	cgg	cga	cag	ctg	1152
Arg	Glu	Arg	Gln	Leu	Arg	Glu	Glu	Ala	Glu	Arg	Glu	Arg	Arg	Gln	Leu	
369					374					379					384	
gct	gac	cgt	ctg	cgc	tcc	aag	tgg	gag	gca	cag	cgc	agc	cgg	gag	ttg	1200
Ala	Asp	Arg	Leu	Arg	Ser	Lys	Trp	Glu	Ala	Gln	Arg	Ser	Arg	Glu	Leu	
385					390					395					400	
cgg	cag	ctg	caa	gag	gag	atg	cag	cgg	gaa	cgc	gag	gcc	gag	atc	cgg	1248
Arg	Gln	Leu	Gln	Glu	Glu	Met	Gln	Arg	Glu	Arg	Glu	Ala	Glu	Ile	Arg	
401					406					411					416	
cag	ctg	ctg	cgc	tgg	aag	gag	gcc	gag	cag	cgg	cag	ctg	cag	cag	ctg	1296
Gln	Leu	Leu	Arg	Trp	Lys	Glu	Ala	Glu	Gln	Arg	Gln	Leu	Gln	Gln	Leu	
417					422					427					432	
ctg	cac	cgg	gag	cgc	gat	ggc	gtg	gtg	cgc	caa	gcc	cgg	gag	ctg	cag	1344
Leu	His	Arg	Glu	Arg	Asp	Gly	Val	Val	Arg	Gln	Ala	Arg	Glu	Leu	Gln	
433					438					443					448	
cgc	cag	ctg	gcc	gag	gag	ctg	gtg	aac	cgc	ggc	cac	tgt	agc	cgc	ccg	1392
Arg	Gln	Leu	Ala	Glu	Glu	Leu	Val	Asn	Arg	Gly	His	Cys	Ser	Arg	Pro	
449					454					459					464	

ggg gcg tcc gag gtt tcc gcg gcg cag tgc cgc tgt cgc ctg cag gaa	1440
Gly Ala Ser Glu Val Ser Ala Ala Gln Cys Arg Cys Arg Leu Gln Glu	
465 470 475 480	
gtg ttg gcg cag ctt cgc tgg cag act gac ggc gag cag gcg gcg cgc	1488
Val Leu Ala Gln Leu Arg Trp Gln Thr Asp Gly Glu Gln Ala Ala Arg	
481 486 491 496	
atc cgc tat ctg cag gcg gcg ctg gag gtg gag cgc cag ctc ttc ctc	1536
Ile Arg Tyr Leu Gln Ala Ala Leu Glu Val Glu Arg Gln Leu Phe Leu	
497 502 507 512	
aag tac atc ctg gcg cac ttc cgc ggg cac ccg gct ttg tcg gga tca	1584
Lys Tyr Ile Leu Ala His Phe Arg Gly His Pro Ala Leu Ser Gly Ser	
513 518 523 528	
ccg gac ccc caa gct gtg cat tcc ttg gaa gaa ccg ctg ccc cag acc	1632
Pro Asp Pro Gln Ala Val His Ser Leu Glu Glu Pro Leu Pro Gln Thr	
529 534 539 544	
tcc agc ggc tct tgc cac gcc ccc aaa ccc gcc tgc caa ctc gga tct	1680
Ser Ser Gly Ser Cys His Ala Pro Lys Pro Ala Cys Gln Leu Gly Ser	
545 550 555 560	
cta gac agc ctg agt gct gaa gtc ggt gtg cgc tcc cgc tcg cta ggc	1728
Leu Asp Ser Leu Ser Ala Glu Val Gly Val Arg Ser Arg Ser Leu Gly	
561 566 571 576	
ctg gtg tcc tct gcg tgc tcc agc tcc cca gac ggc ctg ctc tcc acg	1776
Leu Val Ser Ser Ala Cys Ser Ser Ser Pro Asp Gly Leu Leu Ser Thr	
577 582 587 592	
cac gcc agc tcc ctt gat tgc ttc gca cct gcg tgt tcc cgc tcg ctt	1824
His Ala Ser Ser Leu Asp Cys Phe Ala Pro Ala Cys Ser Arg Ser Leu	
593 598 603 608	
gac agc acc cgg agc ctc ccc aag gcc tcc aaa tcc gag gag cgg ccc	1872
Asp Ser Thr Arg Ser Leu Pro Lys Ala Ser Lys Ser Glu Glu Arg Pro	
609 614 619 624	
tcc tca cca gac acc tcc acc cct ggc tcc cgg agg ctc tcg ccg cca	1920
Ser Ser Pro Asp Thr Ser Thr Pro Gly Ser Arg Arg Leu Ser Pro Pro	
625 630 635 640	
cca tcg cca ctc ccg ccg cca cca cca ccg tca gcc cac agg aaa ctc	1968
Pro Ser Pro Leu Pro Pro Pro Pro Pro Pro Ser Ala His Arg Lys Leu	
641 646 651 656	
agc aac ccg cgg gga gga gaa ggc tct gag agc cag ccc tgc gaa gtc	2016
Ser Asn Pro Arg Gly Gly Glu Gly Ser Glu Ser Gln Pro Cys Glu Val	
657 662 667 672	
ctg act ccc tca ccc ccg ggc ctg ggc cac cac gag ctg ata aag ctg	2064
Leu Thr Pro Ser Pro Pro Gly Leu Gly His His Glu Leu Ile Lys Leu	
673 678 683 688	
aac tgg ctg ctg gcc aag gcg ttg tgg gtg ctg gcg cgc cgc tgt tat	2112

Asn Trp Leu Leu Ala Lys Ala Leu Trp Val Leu Ala Arg Arg Cys Tyr	
689 694 699 704	
acc ctg caa gcg gag aac aag cag ctg cgg cgt gca ggc tgc ccc tac	2160
Thr Leu Gln Ala Glu Asn Lys Gln Leu Arg Arg Ala Gly Cys Pro Tyr	
705 710 715 720	
cag gca gac gag aag gtg aag cgg ctc aag gta aag cgc gcg gag ctg	2208
Gln Ala Asp Glu Lys Val Lys Arg Leu Lys Val Lys Arg Ala Glu Leu	
721 726 731 736	
acc ggg ctc gcg cgg cgc cta gct gac cgc gcc cgc aag ctg cag gag	2256
Thr Gly Leu Ala Arg Arg Leu Ala Asp Arg Ala Arg Lys Leu Gln Glu	
737 742 747 752	
acc aac ctc cgg gcc gtg agc gcg cct ata ccc ggc gag agt tgc gcc	2304
Thr Asn Leu Arg Ala Val Ser Ala Pro Ile Pro Gly Glu Ser Cys Ala	
753 758 763 768	
ggc ctg gag ctg tgc caa gtc ttt gcc cgc cag cgc gct cgg gac ctg	2352
Gly Leu Glu Leu Cys Gln Val Phe Ala Arg Gln Arg Ala Arg Asp Leu	
769 774 779 784	
tcg gag cag gcg agc gcg ccg ctg gcc aag gac aag cag atc gaa gag	2400
Ser Glu Gln Ala Ser Ala Pro Leu Ala Lys Asp Lys Gln Ile Glu Glu	
785 790 795 800	
ctg cgg cag gag tgc cac ctc ctg cag gcg cgt gtc gcc tcg ggt ccc	2448
Leu Arg Gln Glu Cys His Leu Leu Gln Ala Arg Val Ala Ser Gly Pro	
801 806 811 816	
tgc agc gac ctg cat act gga agg ggc gcc ccc tgc acc cag tgg ctc	2496
Cys Ser Asp Leu His Thr Gly Arg Gly Gly Pro Cys Thr Gln Trp Leu	
817 822 827 832	
aac gtc aga gac tta gac cgc ctg cag cgc gag tcc cag cgg gaa gtg	2544
Asn Val Arg Asp Leu Asp Arg Leu Gln Arg Glu Ser Gln Arg Glu Val	
833 838 843 848	
ctg cgc ctg cag agg cag ttg atg ctt cag cag gcc aac ggt gcc gct	2592
Leu Arg Leu Gln Arg Gln Leu Met Leu Gln Gln Gly Asn Gly Gly Ala	
849 854 859 864	
tgg ccc gag gcg ggc gcc cag agc gca acc tgc gag gag gtg cga cgg	2640
Trp Pro Glu Ala Gly Gly Gln Ser Ala Thr Cys Glu Glu Val Arg Arg	
865 870 875 880	
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Gln Met Leu Ala Leu Glu Arg Glu Leu Asp Gln Arg Arg Arg Glu Cys	
881 886 891 896	
cag gag ctg ggc gcg cag gcg gcc ccg gcg cgg cga cgt ggc gag gag	2736
Gln Glu Leu Gly Ala Gln Ala Ala Pro Ala Arg Arg Arg Gly Glu Glu	
897 902 907 912	
gcc gag aca cag ctg cag gcg gcg ctg ctc aaa aac gcc tgg ctg gcg	2784
Ala Glu Thr Gln Leu Gln Ala Ala Leu Leu Lys Asn Ala Trp Leu Ala	

913	918	923	928	
gag gag aat ggg cgg ctg cag gcc aag acc gac tgg gtg cgg aag gtg				2832
Glu Glu Asn Gly Arg Leu Gln Ala Lys Thr Asp Trp Val Arg Lys Val				
929	934	939	944	
gag gct gag aat agc gaa gtg cgc ggc cac ctg ggc cgc gcg tgt caa				2880
Glu Ala Glu Asn Ser Glu Val Arg Gly His Leu Gly Arg Ala Cys Gln				
945	950	955	960	
gag cgc gat gcc tcc ggc ttg atc gcc gaa cag ctg ctg cag cag gcg				2928
Glu Arg Asp Ala Ser Gly Leu Ile Ala Glu Gln Leu Leu Gln Gln Ala				
961	966	971	976	
gcg cgc ggg cag gac agg cag cag cag ctg caa cgc gac ccg cag aag				2976
Ala Arg Gly Gln Asp Arg Gln Gln Gln Leu Gln Arg Asp Pro Gln Lys				
977	982	987	992	
gcc ctg tgt gac ctc cat cct tcc tgg aag gag ata cag gcg ctc cag				3024
Ala Leu Cys Asp Leu His Pro Ser Trp Lys Glu Ile Gln Ala Leu Gln				
993	998	1003	1008	
tgt cgg cct ggt cac cct cct gaa cag ccc tgg gag acc agt caa atg				3072
Cys Arg Pro Gly His Pro Pro Glu Gln Pro Trp Glu Thr Ser Gln Met				
1009	1014	1019	1024	
ccg gag tcc caa gtt aaa ggt agc aga agg ccc aag ttc cac gca cgg				3120
Pro Glu Ser Gln Val Lys Gly Ser Arg Arg Pro Lys Phe His Ala Arg				
1025	1030	1035	1040	
cct gaa gac tac gca gtg tca cag ccc aac aga gac ata cag gag aaa				3168
Pro Glu Asp Tyr Ala Val Ser Gln Pro Asn Arg Asp Ile Gln Glu Lys				
1041	1046	1051	1056	
agg gaa gcc tcc ctc gag gag agc cca gtt gcc ctt ggg gag tca gcc				3216
Arg Glu Ala Ser Leu Glu Glu Ser Pro Val Ala Leu Gly Glu Ser Ala				
1057	1062	1067	1072	
agt gtc ccc caa gtt tca gag aca gtc cct gcc agc caa cct ctg tcc				3264
Ser Val Pro Gln Val Ser Glu Thr Val Pro Ala Ser Gln Pro Leu Ser				
1073	1078	1083	1088	
aag aaa acc agc tcc cag tca aac tcc tcc tct gag ggg tcg atg tgg				3312
Lys Lys Thr Ser Ser Gln Ser Asn Ser Ser Ser Glu Gly Ser Met Trp				
1089	1094	1099	1104	
gcc acc gtg ccg tcc tcc cct act ctg gac agg gac aca gcc agt gag				3360
Ala Thr Val Pro Ser Ser Pro Thr Leu Asp Arg Asp Thr Ala Ser Glu				
1105	1110	1115	1120	
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Val Asp Asp Leu Glu Pro Asp Ser Val Ser Leu Ala Leu Glu Met Gly				
1121	1126	1131	1136	
ggc tcg gcg gct cct gct gcc ccc aag ctc aag atc ttc atg gct cag				3456
Gly Ser Ala Ala Pro Ala Ala Pro Lys Leu Lys Ile Phe Met Ala Gln				
1137	1142	1147	1152	

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Tyr Asn Tyr Asn Pro Phe Glu Gly Pro Asn Asp His Pro Glu Gly Glu	
1153 1158 1163 1168	
ctg ccc ctc aca gct ggg gac tac ata tat atc ttc ggg gac atg gat	3552
Leu Pro Leu Thr Ala Gly Asp Tyr Ile Tyr Ile Phe Gly Asp Met Asp	
1169 1174 1179 1184	
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Glu Asp Gly Phe Tyr Glu Gly Glu Leu Glu Asp Gly Arg Arg Gly Leu	
1185 1190 1195 1200	
gtg ccc tcc aac ttc gtg gag cag att ccg gac agc tac atc cca ggc	3648
Val Pro Ser Asn Phe Val Glu Gln Ile Pro Asp Ser Tyr Ile Pro Gly	
1201 1206 1211 1216	
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Cys Leu Pro Ala Lys Ser Pro Asp Leu Gly Pro Ser Gln Leu Pro Ala	
1217 1222 1227 1232	
ggg cag gat gaa gct ctg gag gaa gac agc tta tta tct ggg aaa gcc	3744
Gly Gln Asp Glu Ala Leu Glu Glu Asp Ser Leu Leu Ser Gly Lys Ala	
1233 1238 1243 1248	
cag gga gtg gtg gac aga ggg ctg tgc cag atg gtc agg gtg ggc tcc	3792
Gln Gly Val Val Asp Arg Gly Leu Cys Gln Met Val Arg Val Gly Ser	
1249 1254 1259 1264	
aag aca gaa gta gca aca gag atc ctg gat acc aag acg gaa gcc tgc	3840
Lys Thr Glu Val Ala Thr Glu Ile Leu Asp Thr Lys Thr Glu Ala Cys	
1265 1270 1275 1280	
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Gln Leu Gly Leu Leu Gln Ser Met Gly Lys Gln Gly Leu Ser Arg Pro	
1281 1286 1291 1296	
ctt ctg ggg acc aaa ggg gtg ctc cgt atg gct ccc atg cag cta cac	3936
Leu Leu Gly Thr Lys Gly Val Leu Arg Met Ala Pro Met Gln Leu His	
1297 1302 1307 1312	
ctg cag aat gtc aca gcc aca tca gcc aac atc acc tgg gtc tac agc	3984
Leu Gln Asn Val Thr Ala Thr Ser Ala Asn Ile Thr Trp Val Tyr Ser	
1313 1318 1323 1328	
agc cac cgc cac ccc cat gtg gta tat ctt gat gac cga gag cat gcc	4032
Ser His Arg His Pro His Val Val Tyr Leu Asp Asp Arg Glu His Ala	
1329 1334 1339 1344	
ctg acc cca gcg ggc gtg agc tgc tac acc ttc cag ggc ctg tgc ccc	4080
Leu Thr Pro Ala Gly Val Ser Cys Tyr Thr Phe Gln Gly Leu Cys Pro	
1345 1350 1355 1360	
ggc acg cac tac cgg gcg cgg gtg gag gtg cgg ctg cca cgg gac ttg	4128
Gly Thr His Tyr Arg Ala Arg Val Glu Val Arg Leu Pro Arg Asp Leu	
1361 1366 1371 1376	

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Leu	Gln	Val	Tyr	Trp	Gly	Thr	Met	Ser	Ser	Thr	Val	Thr	Phe	Asp	Thr	
1377					1382					1387					1392	
ctc	ttg	gca	gga	cct	ccc	tac	cca	ccg	ctg	gat	gtg	ctg	gtg	gag	cgc	4224
Leu	Leu	Ala	Gly	Pro	Pro	Tyr	Pro	Pro	Leu	Asp	Val	Leu	Val	Glu	Arg	
1393					1398					1403					1408	
cat	gcc	tcg	cca	ggt	gtc	ctg	gtg	gtc	agc	tgg	ctc	cct	gtg	acc	att	4272
His	Ala	Ser	Pro	Gly	Val	Leu	Val	Val	Ser	Trp	Leu	Pro	Val	Thr	Ile	
1409					1414					1419					1424	
gac	tca	gct	ggg	tcc	tcc	aat	gga	gtc	cag	gtc	acc	ggt	tat	gct	gtg	4320
Asp	Ser	Ala	Gly	Ser	Ser	Asn	Gly	Val	Gln	Val	Thr	Gly	Tyr	Ala	Val	
1425					1430					1435					1440	
tat	gca	gat	ggg	ctt	aag	gtt	tgt	gag	gtc	gcc	gat	gcc	act	gct	ggg	4368
Tyr	Ala	Asp	Gly	Leu	Lys	Val	Cys	Glu	Val	Ala	Asp	Ala	Thr	Ala	Gly	
1441					1446					1451					1456	
agc	acc	cta	ttg	gaa	ttc	tcc	cag	cta	cag	gtg	ccc	ctc	acg	tgg	cag	4416
Ser	Thr	Leu	Leu	Glu	Phe	Ser	Gln	Leu	Gln	Val	Pro	Leu	Thr	Trp	Gln	
1457					1462					1467					1472	
aag	gtc	tca	gtg	aga	acc	atg	tca	ctc	tgt	ggt	gag	tcc	ctg	gat	tca	4464
Lys	Val	Ser	Val	Arg	Thr	Met	Ser	Leu	Cys	Gly	Glu	Ser	Leu	Asp	Ser	
1473					1478					1483					1488	
gtg	cct	gct	cag	atc	ccc	gag	gac	ttc	ttc	atg	tgt	cac	cga	tgg	cca	4512
Val	Pro	Ala	Gln	Ile	Pro	Glu	Asp	Phe	Phe	Met	Cys	His	Arg	Trp	Pro	
1489					1494					1499					1504	
gag	act	cca	ccc	ttt	agc	tac	act	tgt	ggc	gac	cca	tcc	acc	tac	aga	4560
Glu	Thr	Pro	Pro	Phe	Ser	Tyr	Thr	Cys	Gly	Asp	Pro	Ser	Thr	Tyr	Arg	
1505					1510					1515					1520	
gtc	acc	ttc	ccc	gtc	tgc	ccc	cag	aag	ctg	tca	ctg	gct	cct	ccg	agt	4608
Val	Thr	Phe	Pro	Val	Cys	Pro	Gln	Lys	Leu	Ser	Leu	Ala	Pro	Pro	Ser	
1521					1526					1531					1536	
gcc	aag	gcc	agc	ccc	cac	aac	cct	gga	agc	tgc	ggg	gag	ccc	cag	gcc	4656
Ala	Lys	Ala	Ser	Pro	His	Asn	Pro	Gly	Ser	Cys	Gly	Glu	Pro	Gln	Ala	
1537					1542					1547					1552	
aag	ttc	cta	gaa	gca	ttc	ttt	gaa	gaa	ccc	cca	agg	agg	caa	tcc	cca	4704
Lys	Phe	Leu	Glu	Ala	Phe	Phe	Glu	Glu	Pro	Pro	Arg	Arg	Gln	Ser	Pro	
1553					1558					1563					1568	
gtg	tcc	aac	ctg	ggc	tca	gaa	gga	gaa	tgt	ccg	agt	tca	ggg	gct	ggc	4752
Val	Ser	Asn	Leu	Gly	Ser	Glu	Gly	Glu	Cys	Pro	Ser	Ser	Gly	Ala	Gly	
1569					1574					1579					1584	
agc	caa	gcc	cag	gag	ctt	gca	gag	gcc	tgg	gag	ggc	tgt	aga	aag	gac	4800
Ser	Gln	Ala	Gln	Glu	Leu	Ala	Glu	Ala	Trp	Glu	Gly	Cys	Arg	Lys	Asp	
1585					1590					1595					1600	
ctg	ctc	ttt	cag	aag	agt	ccc	cag	aac	cac	agg	cca	cct	tca	gtc	agt	4848

Leu	Leu	Phe	Gln	Lys	Ser	Pro	Gln	Asn	His	Arg	Pro	Pro	Ser	Val	Ser		
1601					1606					1611					1616		
gac	cag	cct	ggg	gag	aag	gaa	aat	tgc	tcc	cag	cac	atg	ggc	acc	agc	4896	
Asp	Gln	Pro	Gly	Glu	Lys	Glu	Asn	Cys	Ser	Gln	His	Met	Gly	Thr	Ser		
1617					1622					1627					1632		
aaa	agc	cct	gct	cca	gga	ttc	atc	cat	cta	cgc	acc	gag	tgt	ggg	ccc	4944	
Lys	Ser	Pro	Ala	Pro	Gly	Phe	Ile	His	Leu	Arg	Thr	Glu	Cys	Gly	Pro		
1633					1638					1643					1648		
agg	aaa	gaa	cgc	tgt	cag	gaa	aag	gct	gcc	ctt	gag	agg	gta	ctt	cgg	4992	
Arg	Lys	Glu	Pro	Cys	Gln	Glu	Lys	Ala	Ala	Leu	Glu	Arg	Val	Leu	Arg		
1649					1654					1659					1664		
caa	aag	caa	gat	gcc	caa	ggg	ttc	aca	cct	ccc	cag	ctg	ggc	gcc	agc	5040	
Gln	Lys	Gln	Asp	Ala	Gln	Gly	Phe	Thr	Pro	Pro	Gln	Leu	Gly	Ala	Ser		
1665					1670					1675					1680		
caa	cag	tat	gca	tct	gac	ttc	cat	aac	gtt	ttg	aag	gag	gag	cag	gag	5088	
Gln	Gln	Tyr	Ala	Ser	Asp	Phe	His	Asn	Val	Leu	Lys	Glu	Glu	Gln	Glu		
1681					1686					1691					1696		
gca	ctg	tgc	ttg	gat	ctg	tgg	ggc	aca	gag	agg	cga	gag	gag	agg	agg	5136	
Ala	Leu	Cys	Leu	Asp	Leu	Trp	Gly	Thr	Glu	Arg	Arg	Glu	Glu	Arg	Arg		
1697					1702					1707					1712		
gag	cct	gag	ccc	cac	agc	agg	caa	gga	caa	gct	ctg	ggg	gtg	aag	aga	5184	
Glu	Pro	Glu	Pro	His	Ser	Arg	Gln	Gly	Gln	Ala	Leu	Gly	Val	Lys	Arg		
1713					1718					1723					1728		
ggg	tgc	cag	ctc	cat	gag	ccc	agc	tgc	gca	ctg	tgt	cca	gct	cca	tcc	5232	
Gly	Cys	Gln	Leu	His	Glu	Pro	Ser	Ser	Ala	Leu	Cys	Pro	Ala	Pro	Ser		
1729					1734					1739					1744		
gcc	aaa	gtc	atc	aag	atg	ccc	agg	ggt	ggc	ccc	caa	cag	ctg	ggg	acg	5280	
Ala	Lys	Val	Ile	Lys	Met	Pro	Arg	Gly	Gly	Pro	Gln	Gln	Leu	Gly	Thr		
1745					1750					1755					1760		
ggg	gcc	aac	act	cca	gcc	agg	gtc	ttt	gtg	gcc	ctc	tct	gat	tac	aac	5328	
Gly	Ala	Asn	Thr	Pro	Ala	Arg	Val	Phe	Val	Ala	Leu	Ser	Asp	Tyr	Asn		
1761					1766					1771					1776		
ccc	ctg	gtg	atg	tct	gcc	aac	ctc	aag	gct	gca	gag	gag	gag	ctg	gtc	5376	
Pro	Leu	Val	Met	Ser	Ala	Asn	Leu	Lys	Ala	Ala	Glu	Glu	Glu	Leu	Val		
1777					1782					1787					1792		
ttc	cag	aaa	agg	cag	ttg	cta	aga	gtg	tgg	ggc	tct	cag	gac	acc	cat	5424	
Phe	Gln	Lys	Arg	Gln	Leu	Leu	Arg	Val	Trp	Gly	Ser	Gln	Asp	Thr	His		
1793					1798					1803					1808		
gat	ttc	tac	ctc	agc	gag	tgc	aac	agg	caa	gtg	ggc	aat	atc	ccc	ggg	5472	
Asp	Phe	Tyr	Leu	Ser	Glu	Cys	Asn	Arg	Gln	Val	Gly	Asn	Ile	Pro	Gly		
1809					1814					1819					1824		
cgc	cta	gtg	gct	gag	atg	gag	gtg	ggg	aca	gag	cag	act	gat	agg	agg	5520	
Arg	Leu	Val	Ala	Glu	Met	Glu	Val	Gly	Thr	Glu	Gln	Thr	Asp	Arg	Arg		

1825	1830	1835	1840	
tgg cgt tct ccg gcc caa ggg cac ctg cct tct	gtg gcc cac ctc gag	5568		
Trp Arg Ser Pro Ala Gln Gly His Leu Pro Ser	Val Ala His Leu Glu			
1841	1846	1851	1856	
gac ttt cag ggg ctc acc atc ccc cag ggt tcc	tcc ctg gtg ctc cag	5616		
Asp Phe Gln Gly Leu Thr Ile Pro Gln Gly Ser	Leu Val Leu Gln			
1857	1862	1867	1872	
ggg aac tcc aag aga ctc cca ctg tgg act cca	aag atc atg ata gca	5664		
Gly Asn Ser Lys Arg Leu Pro Leu Trp Thr Pro	Lys Ile Met Ile Ala			
1873	1878	1883	1888	
gct ctg gac tat gat cct ggg gat ggg caa atg	ggg ggc cag ggg aag	5712		
Ala Leu Asp Tyr Asp Pro Gly Asp Gly Gln Met	Gly Gly Gln Gly Lys			
1889	1894	1899	1904	
ggc agg ctg gcg ctg agg gca gga gac gtg gtc	atg gtt tac ggg ccc	5760		
Gly Arg Leu Ala Leu Arg Ala Gly Asp Val Val	Met Val Tyr Gly Pro			
1905	1910	1915	1920	
atg gat gac caa gga ttc tat tat gga gag ttg	ggc ggc cac agg ggc	5808		
Met Asp Asp Gln Gly Phe Tyr Tyr Gly Glu Leu	Gly Gly His Arg Gly			
1921	1926	1931	1936	
ctg gtt cct gcc cac ctg ctg gat cac atg tcc	ctc cat gga cac tga	5856		
Leu Val Pro Ala His Leu Leu Asp His Met Ser	Leu His Gly His *			
1937	1942	1947	1952	
gcaagcatcc ttgccaggt agtggcctct ggctgctcac accctgccag aggagaagca				5916
agcgttcaga cctcacacc agcaccctc ctcaccacca taagtagcat gtgctccaag				5976
tgccactgtg ttaaactgat ggtagtcctt aagtgtcccc taggctctga aagtagcagg				6036
acttaagcct gagttatttg caaaagcaaa cacaacaagc caaccctga gagtctgaga				6096
agccatttca aagttgtgta taactatggc aggtatacgg agaagcgct ttttctgtgg				6156
ccaatgtgtg ttttctctgg gaggttaagg ttatctgtcc attgccttgt acgaaagtct				6216
caagaaaagt ctacatctta aaaaaaaaaa aa				6248

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 <212> DNA
 <213> Homo sapiens

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 <221> CDS
 <222> (204)..(1265)

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Arg Asn Leu Thr Asn Val Leu Gly Thr Gln Ser Arg Tyr Val Leu Asn	
202 207 212 217	
ggc gcg ttc ctg gcc ttc gag cgc cgg cac gag ttc atg gcg ctg tgc	902
Gly Ala Phe Leu Ala Phe Glu Arg Arg His Glu Phe Met Ala Leu Cys	
218 223 228 233	
atg cgg gac ttc gtg gac cac tac aac ggc tgg atc tgg ggt cac cag	950
Met Arg Asp Phe Val Asp His Tyr Asn Gly Trp Ile Trp Gly His Gln	
234 239 244 249	
ggc ccg cag ctg ctc acg cgg gtc ttc aag aag tgg tgt tcc atc cgc	998
Gly Pro Gln Leu Leu Thr Arg Val Phe Lys Lys Trp Cys Ser Ile Arg	
250 255 260 265	
agc ctg gcc gag agc cgc gcc tgc cgc ggc gtc acc acc ctg ccc cct	1046
Ser Leu Ala Glu Ser Arg Ala Cys Arg Gly Val Thr Thr Leu Pro Pro	
266 271 276 281	
gag gcc ttc tac ccc atc ccc tgg cag gac tgg aag aag tac ttt gag	1094
Glu Ala Phe Tyr Pro Ile Pro Trp Gln Asp Trp Lys Lys Tyr Phe Glu	
282 287 292 297	
gac atc aac ccg gag gag ctg ccg cgg ctg ctc agt gcc acc tat gct	1142
Asp Ile Asn Pro Glu Glu Leu Pro Arg Leu Leu Ser Ala Thr Tyr Ala	
298 303 308 313	
gtc cac gtg tgg aac aag aag agc cag ggc acg cgg ttc gag gcc acg	1190
Val His Val Trp Asn Lys Lys Ser Gln Gly Thr Arg Phe Glu Ala Thr	
314 319 324 329	
tcc agg gca ctg ctg gcc cag ctg cat gcc cgc tac tgc ccc acg acg	1238
Ser Arg Ala Leu Leu Ala Gln Leu His Ala Arg Tyr Cys Pro Thr Thr	
330 335 340 345	
cac gag gcc atg aaa atg tac ttg tga	1265
His Glu Ala Met Lys Met Tyr Leu *	
346 351	

<210> 164
 <211> 1825
 <212> DNA
 <213> Homo sapiens

<220>
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atg gca aag gtc att ctg aag cag agt aaa caa tgc aag aat ctg ctt	48
Met Ala Lys Val Ile Leu Lys Gln Ser Lys Gln Cys Lys Asn Leu Leu	

1			5			10												
acc	tgc	aaa	gtg	gcc	cag	gtc	tgc	ccc	gta	tgt	ggc	tgt	ctt	cat	tgt		96	
Thr	Cys	Lys	Val	Ala	Gln	Val	Cys	Pro	Val	Cys	Gly	Cys	Leu	His	Cys			
17					22					27					32			
tat	ttc	tgg	tgg	ctc	tca	ggt	ctt	gag	tca	aga	cgt	ccc	agc	tct	cca		144	
Tyr	Phe	Trp	Trp	Leu	Ser	Gly	Leu	Glu	Ser	Arg	Arg	Pro	Ser	Ser	Pro			
33					38					43					48			
ctc	atc	gat	att	aaa	ccc	atc	gag	ttt	ggc	gtt	ctc	agc	gcc	aag	aag		192	
Leu	Ile	Asp	Ile	Lys	Pro	Ile	Glu	Phe	Gly	Val	Leu	Ser	Ala	Lys	Lys			
49					54					59					64			
gag	ccc	atc	caa	cct	tcg	gtg	ctc	aga	cgg	acc	tat	aac	ccc	gac	gac		240	
Glu	Pro	Ile	Gln	Pro	Ser	Val	Leu	Arg	Arg	Thr	Tyr	Asn	Pro	Asp	Asp			
65					70					75					80			
tat	ttc	agg	aag	ttc	gaa	ccc	cac	ctg	tac	tcc	ctc	gac	tcc	aac	agc		288	
Tyr	Phe	Arg	Lys	Phe	Glu	Pro	His	Leu	Tyr	Ser	Leu	Asp	Ser	Asn	Ser			
81					86					91					96			
gac	gat	gtg	gac	tct	ctg	aca	gac	gag	gag	atc	ctg	tcc	aag	tac	cag		336	
Asp	Asp	Val	Asp	Ser	Leu	Thr	Asp	Glu	Glu	Ile	Leu	Ser	Lys	Tyr	Gln			
97					102					107					112			
ctg	ggc	atg	ctg	cac	ttc	agc	act	cag	tac	gac	ctg	ctg	cac	aac	cac		384	
Leu	Gly	Met	Leu	His	Phe	Ser	Thr	Gln	Tyr	Asp	Leu	Leu	His	Asn	His			
113					118					123					128			
ctc	acc	gtg	cgc	gtg	atc	gag	gcc	agg	gac	ctg	cca	cct	ccc	atc	tcc		432	
Leu	Thr	Val	Arg	Val	Ile	Glu	Ala	Arg	Asp	Leu	Pro	Pro	Pro	Ile	Ser			
129					134					139					144			
cac	gat	ggc	tcg	cgc	cag	gac	atg	gcg	cac	tcc	aac	ccc	tac	gtc	aag		480	
His	Asp	Gly	Ser	Arg	Gln	Asp	Met	Ala	His	Ser	Asn	Pro	Tyr	Val	Lys			
145					150					155					160			
atc	tgt	ctc	ctg	cca	gac	cag	aag	aac	tca	aag	cag	acc	ggg	gtc	aaa		528	
Ile	Cys	Leu	Leu	Pro	Asp	Gln	Lys	Asn	Ser	Lys	Gln	Thr	Gly	Val	Lys			
161					166					171					176			
cgc	aag	acc	cag	aag	ccc	gtg	ttt	gag	gag	cgc	tac	acc	ttc	gag	atc		576	
Arg	Lys	Thr	Gln	Lys	Pro	Val	Phe	Glu	Glu	Arg	Tyr	Thr	Phe	Glu	Ile			
177					182					187					192			
ccc	ttc	ctg	gag	gcc	cag	agg	agg	acc	ctg	ctc	ctg	acc	gtg	gtg	gat		624	
Pro	Phe	Leu	Glu	Ala	Gln	Arg	Arg	Thr	Leu	Leu	Leu	Thr	Val	Val	Asp			
193					198					203					208			
ttt	gat	aag	tt															

gga acg atg cgt ttt atc gag tat gtg cgt tgg gtg cga atg gcg aag	1440
Gly Thr Met Arg Phe Ile Glu Tyr Val Arg Trp Val Arg Met Ala Lys	
465 470 475 480	

gcg agg atg att ttg cag aaa tat cat ctg tca att cat gaa gtg gca	1488
Ala Arg Met Ile Leu Gln Lys Tyr His Leu Ser Ile His Glu Val Ala	
481 486 491 496	

cag cgt tgc ggt ttt ccg gat agc gac tat ttt tgt cgc gtt ttc cgg	1536
Gln Arg Cys Gly Phe Pro Asp Ser Asp Tyr Phe Cys Arg Val Phe Arg	
497 502 507 512	

cgt cag ttt ggt ctg acg ccg gga gag tac agc gcc cgt ttt cag ggc	1584
Arg Gln Phe Gly Leu Thr Pro Gly Glu Tyr Ser Ala Arg Phe Gln Gly	
513 518 523 528	

taa cgtc agaagggttaa ttctgtttcc agcagcgtca ggatactttg tgcattctgc	1641
*	
529	

ggggcaaacac acgactggcg gaagttttta ttcaccagtt tacgcgccag ctgcgagaag	1701
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actttcacat gattcatccc ttctgttagca cccagcgtca gcatgatcac cagttcgact	1761
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tcgcccattt ctgactgcca gccaatcggt ttcgccagcc gggcaatgct gatactggaa	1821
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tgac	1825
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<210> 165
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gagagtctgt gtctctggga aagaagaaca tctctgcttc acagtgattt gcgctggggg	120
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agaggcatca attggcttcg gacccaaggg ggagacgaga ccaggtcacc ccggttaaga	180
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ccaagtgagc gttgcccctc cctctcccaa ctctctaccc ggga atg tct cgg cga	236
Met Ser Arg Arg	
1	

aag cag cgg aaa ccc caa cag tta atc tcg gac tgc gaa ggt ccc agc	284
Lys Gln Arg Lys Pro Gln Gln Leu Ile Ser Asp Cys Glu Gly Pro Ser	
5 10 15 20	

gcg tct gag aac ggt gat gct agc gag gag gat cac ccc caa gtc tgt	332
Ala Ser Glu Asn Gly Asp Ala Ser Glu Glu Asp His Pro Gln Val Cys	

21	26	31	36	
gcc aag tgc tgc gca	caa ttc act gac cca	act gaa ttc ctc gcc	cac	380
Ala Lys Cys Cys Ala	Gln Phe Thr Asp Pro	Thr Glu Phe Leu Ala	His	
37	42	47	52	
cag aac gca tgt tct	act gac cct cct gta	atg gtg ata att ggg	ggc	428
Gln Asn Ala Cys Ser	Thr Asp Pro Pro Val	Met Val Ile Ile Gly	Gly	
53	58	63	68	
cag gag aac ccc aac	aac tct tgc gcc tcc	tct gaa ccc cgg cct	gag	476
Gln Glu Asn Pro Asn	Asn Ser Ser Ala Ser	Ser Glu Pro Arg Pro	Glu	
69	74	79	84	
ggt cac aat aat cct	cag gtc atg gac aca	gag cat agc aac ccc	cca	524
Gly His Asn Asn Pro	Gln Val Met Asp Thr	Glu His Ser Asn Pro	Pro	
85	90	95	100	
gat tct ggg tcc tcc	gtg ccc acg gat ccc	acc tgg ggc cca gag	agg	572
Asp Ser Gly Ser Ser	Val Pro Thr Asp Pro	Thr Trp Gly Pro Glu	Arg	
101	106	111	116	
aga gga gag gag tct	tca ggg cat ttc ctg	gtc gct gcc aca ggt	aca	620
Arg Gly Glu Glu Ser	Ser Gly His Phe Leu	Val Ala Ala Thr Gly	Thr	
117	122	127	132	
gcg gct ggg gga ggc	ggg ggc ctg atc ttg	gcc agt ccc aag ctg	gga	668
Ala Ala Gly Gly Gly	Gly Gly Leu Ile Leu	Ala Ser Pro Lys Leu	Gly	
133	138	143	148	
gca acc cca tta cct	cca gaa tgc acc cct	gca ccc cct cct cct	cca	716
Ala Thr Pro Leu Pro	Pro Glu Ser Thr Pro	Ala Pro Pro Pro Pro	Pro	
149	154	159	164	
cca ccc cct ccg ccc	cca ggg gta ggc agt	ggc cac ttg aat atc	ccc	764
Pro Pro Pro Pro Pro	Pro Gly Val Gly Ser	Gly His Leu Asn Ile	Pro	
165	170	175	180	
ctg atc ttg gaa gag	cta cgg gtg ctg cag	cag cgg cag atc cat	cag	812
Leu Ile Leu Glu Glu	Leu Arg Val Leu Gln	Gln Arg Gln Ile His	Gln	
181	186	191	196	
atg cag atg act gag	caa atc tgc agg cag	gtg ctg ttg ctt ggc	tcc	860
Met Gln Met Thr Glu	Gln Ile Cys Arg Gln	Val Leu Leu Leu Gly	Ser	
197	202	207	212	
tta ggc cag acg gtg	ggt gcc cct gcc agt	ccc tca gag cta cct	ggg	908
Leu Gly Gln Thr Val	Gly Ala Pro Ala Ser	Pro Ser Glu Leu Pro	Gly	
213	218	223	228	
aca ggg act gcc tct	tcc acc aag ccc cta	cta ccc ctc ttc agc	ccc	956
Thr Gly Thr Ala Ser	Ser Thr Lys Pro Leu	Leu Pro Leu Phe Ser	Pro	
229	234	239	244	
atc aag cct gtc caa	acc agc aag aca ctg	gca tct tcc tcc tcc	tcc	1004
Ile Lys Pro Val Gln	Thr Ser Lys Thr Leu	Ala Ser Ser Ser Ser	Ser	
245	250	255	260	

tcc tct tcc tct tca ggg gca gaa acg ccc aag cag gcc ttc ttc cac	1052
Ser Ser Ser Ser Ser Gly Ala Glu Thr Pro Lys Gln Ala Phe Phe His	
261 266 271 276	
ctt tac cac cca ctg ggg tca cag cat cct ttc tct gct gga ggg gtt	1100
Leu Tyr His Pro Leu Gly Ser Gln His Pro Phe Ser Ala Gly Gly Val	
277 282 287 292	
ggg cga agc cac aaa ccc acc cct gcc cct tcc cca gcc ttg cca ggc	1148
Gly Arg Ser His Lys Pro Thr Pro Ala Pro Ser Pro Ala Leu Pro Gly	
293 298 303 308	
agc aca gat cag ctg att gcc tcg cct cat ctg gca ttc cca agc acc	1196
Ser Thr Asp Gln Leu Ile Ala Ser Pro His Leu Ala Phe Pro Ser Thr	
309 314 319 324	
acg gga cta ctg gca gca cag tgt ctt ggg gca gcc cga ggc ctt gag	1244
Thr Gly Leu Leu Ala Ala Gln Cys Leu Gly Ala Ala Arg Gly Leu Glu	
325 330 335 340	
gcc act gcc tcc cca ggg ctc ctg aag cca aag aat gga agt ggt gag	1292
Ala Thr Ala Ser Pro Gly Leu Leu Lys Pro Lys Asn Gly Ser Gly Glu	
341 346 351 356	
ctg agc tac gga gaa gtg atg ggt ccc ttg gag aag cct ggt gga agg	1340
Leu Ser Tyr Gly Glu Val Met Gly Pro Leu Glu Lys Pro Gly Gly Arg	
357 362 367 372	
cac aaa tgc cgc ttc tgt gcc aaa gta ttt ggc agt gac agt gcc ctg	1388
His Lys Cys Arg Phe Cys Ala Lys Val Phe Gly Ser Asp Ser Ala Leu	
373 378 383 388	
cag atc cac ctt cgt tcc cac acg ggt gag agg ccc tat aag tgc aat	1436
Gln Ile His Leu Arg Ser His Thr Gly Glu Arg Pro Tyr Lys Cys Asn	
389 394 399 404	
gtc tgt gga aac cgt ttt acc acc cgt ggc aac ctc aaa gtg cat ttc	1484
Val Cys Gly Asn Arg Phe Thr Thr Arg Gly Asn Leu Lys Val His Phe	
405 410 415 420	
cac cgg cat cgt gag aag tac cca cat gtg cag atg aac cca cac cca	1532
His Arg His Arg Glu Lys Tyr Pro His Val Gln Met Asn Pro His Pro	
421 426 431 436	
gta cca gag cac cta gac tat gtc att acc agc agt ggc ttg cct tat	1580
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 His Lys Pro Glu Lys Ala Phe Gln Gln Ser Val Glu Gln Asp Asn Leu
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 Phe Asp Ile Ser Thr Glu Glu Gly Ser Thr Lys Arg Lys Lys Ser Gln
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 Lys Gly Pro Ala Lys Thr Lys Lys Leu Lys Ile Glu Lys Arg Glu Ser
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Gln	Glu	Gln	Pro	Leu	Lys	Asp	Leu	Leu	His	Leu	Pro	Glu	Leu	Phe	Ser		
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Thr	Gly	Val	Val	Asp	Phe	Met	His	Leu	Asp	Pro	Lys	Lys	Ala	Gly	Thr		
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Ser	Gly	Leu	Ala	Pro	Lys	Ala	Ile	Met	Ser	Asp	Lys	Phe	Val	Thr	Ser	
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Asp Ser Val Leu Ile Gln Thr Leu Ala Glu Met Thr Pro Gly Met Phe	
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Leu Asp Leu Val Val Gln Glu Val Leu Glu Asp Gly Ser Val Val Phe	
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Ser Gly Gly Pro Val Pro Asp Leu Val Leu Lys Ala Ser Arg Tyr His	
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Arg Ala Gly Gln Glu Val Glu Ser Gly Gln Lys Lys Lys Val Val Ile	
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Asp Leu Val Asn Arg Lys Ala Arg Lys Leu Arg Lys Gly Ser Glu His	
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tcttttgtgc ttctgtctgg gtcacccatt gctcccaaag catgcccggc acttgctggc	2967
caagtgtctc aggtgggtcag cacctagaca tgtctctccc cctccctccc ccacttctg	3027
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tccccacccc cttaagagtc ccagcctgat ctgtccagca acccactgtt atctgggagc	3147
tcctgttggt ggaagtgacc aggtgaggcc agggccagca gcataagatg ggcagtgcct	3207
atagcagagg ggtgagtggg atagtccac cccatgagct ggaagccagg tgctgggaga	3267
aggtgatagc tgagatcacc tgatatgcag cccccacaca gtcctataac cagcgcacct	3327
cacagccggc aagcccagag tggaggctgc agacctgggc ccagaaccgc aggggaacct	3387
aagggtacaa cttccaaggg ctccgtttct cc	3419

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gggctcctag gaaggcacag ggctgtctgc tctgcagagg gctccagtgg aaaggaggga	180
atgaggaggg aaggagaggc cctgggtgga ccagacgggc acaccatgaa cctcccaga	240
gacttttagac agagagaggc gtcacacaac accccacact cctcttgcca tctctcacc	300
cctcctctgt ccacacaggt cagcccaaga ctaccccgtc ggtcattctg ttctgcctg	360
cctgtgagga gcccgaagcc aacaaggcca cactggtgtg tctcatgaat aactttatcc	420
gggaatcttg atg gtg acc tgg aag gca gat ggt acc ctc atc acc cag	469
Met Val Thr Trp Lys Ala Asp Gly Thr Leu Ile Thr Gln	
1 5 10	

agc gtg gag aag acc acg ccc tcc aaa cag agc aac aac aag tac gtg 517
 Ser Val Glu Lys Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Val
 14 19 24 29

gcc agc agc tac ctg agc ctg acg ccc gag cag tgg agg tcc cgc aga 565
 Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Arg Ser Arg Arg
 30 35 40 45

agc tac agc tgc cag gtt atg caa gaa ggg agc acc gtg gag aag tca 613
 Ser Tyr Ser Cys Gln Val Met Gln Glu Gly Ser Thr Val Glu Lys Ser
 46 51 56 61

gtg gcc cct gca gaa tgt tca tag gttccagccc ccacccacac ccacaggggc 667
 Val Ala Pro Ala Glu Cys Ser *
 62 67

ctggagctgc aggatcccag gggaggcgctc tctctctgca tcccaagcca ttcagccctt 727

ctcgctgtac ccagtaaacc ctcaataaat atctttgtca gccagaaaaa aaaaaaa 784

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 ggcgagagac ttttcctgtg ggacggagaa gacagctcct tcttagtctg tcgccttcgg 300
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 aatccacccc tgtttgaaat ctatcaagtc ttgttaagcc caacacaaca tcatgtagca 420
 cttataggaa taaaaggact tatggtatta gaattaccta aaagatgggg gaagaattct 480
 gaatttgaag gtggaaaatc aacagtgaat ttagtagcca ctccagttgc ggagagattt 540
 ttcaccagtt ccacctctct gactctaaag catgctgcat ggtatccaag tgaaatcctg 600
 gatccccacg tagtgctgtt aacatcagac aacgtaatca gaatttactc actacgtgag 660
 ccgcagacac ccactaacgt gataatactt tcagaagccg aagaggaaaag tctagtactc 720

aataaaggaa gggcgtatac cgcactctcta ggagagacag cagttgcatt tgactttggg 780
ccattggcag cagtcacaaa gactctatatt ggacaaaacg gcaaagatga agtagtgga 840
taccactgt acatcttata tgaaaatgga gagactttcc tgacatacat cagtctgtta 900
cacagccctg gaaatatttg gaaagctggt ggggccattg ccc atg cat cct gcg 955
Met His Pro Ala
1
gct gaa gat aac tat ggt tat gat gcg tgt gct gta ctc tgc tta ccc 1003
Ala Glu Asp Asn Tyr Gly Tyr Asp Ala Cys Ala Val Leu Cys Leu Pro
5 10 15 20
tgt gtc ccc aat atc tta gtg atc gct act gaa tca gga atg ctg tat 1051
Cys Val Pro Asn Ile Leu Val Ile Ala Thr Glu Ser Gly Met Leu Tyr
21 26 31 36
cac tgt gtc gtg cta gaa ggg gaa gaa gaa gat gac cac acg tca gaa 1099
His Cys Val Val Leu Glu Gly Glu Glu Glu Asp Asp His Thr Ser Glu
37 42 47 52
aag tcc tgg gat tcc agg att gac ctc att cct tct ctg tat gtg ttt 1147
Lys Ser Trp Asp Ser Arg Ile Asp Leu Ile Pro Ser Leu Tyr Val Phe
53 58 63 68
gaa tgt gtt gag ttg gag ctt gct ttg aaa ctg gca tct gga gag gat 1195
Glu Cys Val Glu Leu Glu Leu Ala Leu Lys Leu Ala Ser Gly Glu Asp
69 74 79 84
gac cct ttt gat tct gac ttt tct tgt cca gtc aaa ctt cat aga gat 1243
Asp Pro Phe Asp Ser Asp Phe Ser Cys Pro Val Lys Leu His Arg Asp
85 90 95 100
ccc aag tgt cct tca aga tat cac tgt act cat gaa gct ggt gta cat 1291
Pro Lys Cys Pro Ser Arg Tyr His Cys Thr His Glu Ala Gly Val His
101 106 111 116
agt gtt ggg cta act tgg att cat aaa ctt cac aaa ttt ctt gga tca 1339
Ser Val Gly Leu Thr Trp Ile His Lys Leu His Lys Phe Leu Gly Ser
117 122 127 132
gat gaa gaa gat aag gat agt tta cag gaa ctc tct aca gaa cag aaa 1387
Asp Glu Glu Asp Lys Asp Ser Leu Gln Glu Leu Ser Thr Glu Gln Lys
133 138 143 148
tgc ttt gtt gaa cac atc ctt tgt acg agg cca ttg ccc tgc agg cag 1435
Cys Phe Val Glu His Ile Leu Cys Thr Arg Pro Leu Pro Cys Arg Gln
149 154 159 164
cca gct cca att cga gga ttt tgg att gta cct gac att ctg gga ccc 1483
Pro Ala Pro Ile Arg Gly Phe Trp Ile Val Pro Asp Ile Leu Gly Pro
165 170 175 180
acg atg atc tgc atc acc agt acc tat gaa tgc ctc ata tgg ccg tta 1531
Thr Met Ile Cys Ile Thr Ser Thr Tyr Glu Cys Leu Ile Trp Pro Leu

181	186	191	196	
tta agt aca gtc cat	cca gcg tct cct ccc	ctg ctt tgt act cga	gaa	1579
Leu Ser Thr Val His	Pro Ala Ser Pro Pro	Leu Leu Cys Thr Arg	Glu	
197	202	207	212	
gat gtt gaa gtg gca	gag tct ccc ctc cgt	gtt ctg gct gaa acc cca		1627
Asp Val Glu Val Ala	Glu Ser Pro Leu Arg	Val Leu Ala Glu Thr Pro		
213	218	223	228	
gat tcc ttt gaa aag cat	att aga agc att ttg	caa cgt agt gtt gcc		1675
Asp Ser Phe Glu Lys	His Ile Arg Ser Ile	Leu Gln Arg Ser Val Ala		
229	234	239	244	
aat cca gca ttt ttg aaa	gct tct gaa aag gac	ata gcc cct cct cct		1723
Asn Pro Ala Phe Leu	Lys Ala Ser Glu Lys	Asp Ile Ala Pro Pro Pro		
245	250	255	260	
gaa gaa tgc ctt cag ctc	ctc agc aga gcc acc	cag gtg ttc aga gag		1771
Glu Glu Cys Leu Gln	Leu Leu Ser Arg Ala	Thr Gln Val Phe Arg Glu		
261	266	271	276	
cag tac att ctc aaa	cag gac ttg gca aag	gag gag att cag cgg	agg	1819
Gln Tyr Ile Leu Lys	Gln Asp Leu Ala Lys	Glu Glu Ile Gln Arg Arg		
277	282	287	292	
gtc aaa tta tta tgt	gac caa aaa aag aaa	caa cta gaa gat ctc	agt	1867
Val Lys Leu Leu Cys	Asp Gln Lys Lys Lys	Gln Leu Glu Asp Leu Ser		
293	298	303	308	
tat tgt cga gaa gag	agg aaa agt ctg cgg	gaa atg gct gag cgt	tta	1915
Tyr Cys Arg Glu Glu	Arg Lys Ser Leu Arg	Glu Met Ala Glu Arg Leu		
309	314	319	324	
gct gac aaa tat gag	gaa gct aaa gaa aaa	caa gag gat atc atg	aac	1963
Ala Asp Lys Tyr Glu	Glu Ala Lys Glu Lys	Gln Glu Asp Ile Met Asn		
325	330	335	340	
agg atg aaa aaa cta	ctt cac agt ttt cac	tct gag ctc cca gtt	ctc	2011
Arg Met Lys Lys Leu	Leu His Ser Phe His	Ser Glu Leu Pro Val Leu		
341	346	351	356	
tct gat agt gag cga	gac atg aag aaa gaa	tta cag ctg ata cct	gat	2059
Ser Asp Ser Glu Arg	Asp Met Lys Lys Glu	Leu Gln Leu Ile Pro Asp		
357	362	367	372	
caa ctt cga cat ttg	ggc aat gcc atc aaa	cag gtt act atg aaa	aag	2107
Gln Leu Arg His Leu	Gly Asn Ala Ile Lys	Gln Val Thr Met Lys Lys		
373	378	383	388	
gat tat caa cag caa	aag atg gag aag gtg	ttg agt ctt cca aaa	ccc	2155
Asp Tyr Gln Gln Gln	Lys Met Glu Lys Val	Leu Ser Leu Pro Lys Pro		
389	394	399	404	
acc att att ctc agt	gcc tac cag cga aag	tgc att cag tcc atc	ctg	2203
Thr Ile Ile Leu Ser	Ala Tyr Gln Arg Lys	Cys Ile Gln Ser Ile Leu		
405	410	415	420	

aaa gag gag ggt gaa cat ata agg gaa atg gtg aag caa atc aat gat 2251
 Lys Glu Glu Gly Glu His Ile Arg Glu Met Val Lys Gln Ile Asn Asp
 421 426 431 436

atc cgc aat cat gta aac ttc tga caccaccagg agctgactca cacctgaact 2305
 Ile Arg Asn His Val Asn Phe *
 437 442

gaacaccatt gaaggcttaa acccatattg taaaacagggt agaattatct aatttataaa 2365

aagggtgtttt gatgacaaaa aaaaaaaaaa 2393

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 Ala Glu Gly Pro Val Gly Asp Gly Glu Leu Trp Gln Thr Trp Leu Pro
 4 9 14 19

aac cac gtc gtg ttc ttg cgg ctc cgg gag gga ctg aaa aac cag agt 153
 Asn His Val Val Phe Leu Arg Leu Arg Glu Gly Leu Lys Asn Gln Ser
 20 25 30 35

cca acc gaa gct gag aaa cca gct tct tcg tcg ttg cct tcg tcg ccg 201
 Pro Thr Glu Ala Glu Lys Pro Ala Ser Ser Ser Leu Pro Ser Ser Pro
 36 41 46 51

ccg ccg cag ttg ctg acg aga aac gtg gtc ttt ggc ctc ggc gga gag 249
 Pro Pro Gln Leu Leu Thr Arg Asn Val Val Phe Gly Leu Gly Gly Glu
 52 57 62 67

ctt ttc ctg tgg gac gga gaa gac agc tcc ttc tta gtc gtt cgc ctt 297
 Leu Phe Leu Trp Asp Gly Glu Asp Ser Ser Phe Leu Val Val Arg Leu
 68 73 78 83

cgg ggc ccc agc ggc ggc ggc gaa gag ccc gcc ctg tcc cag tac cag 345
 Arg Gly Pro Ser Gly Gly Gly Glu Glu Pro Ala Leu Ser Gln Tyr Gln
 84 89 94 99

aga ttg ctt tgc ata aat cca ccc ctg ttt gaa atc tat caa gtc ttg 393
 Arg Leu Leu Cys Ile Asn Pro Pro Leu Phe Glu Ile Tyr Gln Val Leu
 100 105 110 115

tta agc cca aca caa cat cat gta gca ctt ata gga ata aaa gga ctt	441
Leu Ser Pro Thr Gln His His Val Ala Leu Ile Gly Ile Lys Gly Leu	
116 121 126 131	
atg gta tta gaa tta cct aaa aga tgg ggg aag aat tct gaa ttt gaa	489
Met Val Leu Glu Leu Pro Lys Arg Trp Gly Lys Asn Ser Glu Phe Glu	
132 137 142 147	
ggg gga aaa tca aca gtg aat tgt agt acc act cca gtt gcg gag aga	537
Gly Gly Lys Ser Thr Val Asn Cys Ser Thr Thr Pro Val Ala Glu Arg	
148 153 158 163	
ttt ttc acc agt tcc acc tct ctg act cta aag cat gct gca tgg tat	585
Phe Phe Thr Ser Ser Thr Ser Leu Thr Leu Lys His Ala Ala Trp Tyr	
164 169 174 179	
cca agt gaa atc ctg gat ccc cac gta gtg ctg tta aca tca gac aac	633
Pro Ser Glu Ile Leu Asp Pro His Val Val Leu Leu Thr Ser Asp Asn	
180 185 190 195	
gta atc aga att tac tca cta cgt gag ccg cag aca ccc act aac gtg	681
Val Ile Arg Ile Tyr Ser Leu Arg Glu Pro Gln Thr Pro Thr Asn Val	
196 201 206 211	
ata ata ctt tca gaa gcc gaa gag gaa agt cta gta ctc aat aaa gga	729
Ile Ile Leu Ser Glu Ala Glu Glu Glu Ser Leu Val Leu Asn Lys Gly	
212 217 222 227	
agg gcg tat acc gca tct cta gga gag aca gca gtt gca ttt gac ttt	777
Arg Ala Tyr Thr Ala Ser Leu Gly Glu Thr Ala Val Ala Phe Asp Phe	
228 233 238 243	
ggg cca ttg gca gca gtc cca aag act cta ttt gga caa aac ggc aaa	825
Gly Pro Leu Ala Ala Val Pro Lys Thr Leu Phe Gly Gln Asn Gly Lys	
244 249 254 259	
gat gaa gta gtg gca tac cca ctg tac atc tta tat gaa aat gga gag	873
Asp Glu Val Val Ala Tyr Pro Leu Tyr Ile Leu Tyr Glu Asn Gly Glu	
260 265 270 275	
act ttc ctg aca tac atc agt ctg tta cac agc cct gga aat att tgg	921
Thr Phe Leu Thr Tyr Ile Ser Leu Leu His Ser Pro Gly Asn Ile Trp	
276 281 286 291	
aaa gct gtt ggg tcc att gcc cat gca tcc tgc ggc tga agataactat	970
Lys Ala Val Gly Ser Ile Ala His Ala Ser Cys Gly *	
292 297 302	
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actgaatcag gaatgctgta tcaactgtgtc gtgctagaag gggaagaaga agatgaccac	1090
acgtcagaaa agtcctggga ttocaggatt gacctcattc cttctctgta tgtgtttgaa	1150
tgtgttgagt tggagcttgc ttgtgaaactg gcactctggag aggatgaccc ttttgattct	1210

gacttttctt	gtccagtcaa	acttcataga	gatcccaagt	gtccttcaag	atatcactgt	1270
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tcctttgaaa	agcatattag	aagcattttg	caacgtagt	ttgccaatcc	agcatttttg	1690
aaagcttctg	aaaaggacat	agccctcct	cctgaagaat	gccttcagct	cctcagcaga	1750
gccaccaggg	tgttcagaga	gcagtacatt	ctcaaacagg	acttggcaaa	ggaggagatt	1810
cagcggaggg	tcaattatt	atgtgaccaa	aaaaagaaac	aactagaaga	tctcagttat	1870
tgtcgagaag	agaggaaaag	tctgcgggaa	atggctgagc	gttttagctga	caaatatgag	1930
gaagctaaag	aaaaacaaga	ggatatcatg	aacaggatga	aaaaactact	tcacagtttt	1990
cactctgagc	tcccagttct	ctctgatagt	gagcgagaca	tgaagaaaga	attacagctg	2050
atacctgatc	aacttcgaca	tttgggcaat	gccatcaaac	aggttactat	gaaaaaggat	2110
tatcaacagc	aaaagatgga	gaaggtgttg	agtcttccaa	aaccacccat	tattctcagt	2170
gcctaccagc	gaaagtgcac	tcagtcacac	ctgaaagagg	agggtgaaca	tataaggga	2230
atggtgaagc	aatcaatga	tatccgcaat	catgtaaact	tctgacacca	ccaggagctg	2290
actcacacct	gaactgaaca	ccattgaagg	cttaaaccoc	tattgtaaaa	caggtagaat	2350
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gaggggaaccc gagcgatcatg ttaggggtgaa gcagaggacc tcagtgtctga ac	atg Met 1	175
cta agg agg ttg gac aaa atc agg ttc aga ggt cac aag aga gat gac		223
Leu Arg Arg Leu Asp Lys Ile Arg Phe Arg Gly His Lys Arg Asp Asp		
2 7 12 17		
ttc ctc gat cta gcg gag tct cca aat gcc tcg gac acc gaa tgc agc		271
Phe Leu Asp Leu Ala Glu Ser Pro Asn Ala Ser Asp Thr Glu Cys Ser		
18 23 28 33		
gac gaa atc ccc ctg aag gta cgg cgg acc tcg ccc cgg gac agc gag		319
Asp Glu Ile Pro Leu Lys Val Pro Arg Thr Ser Pro Arg Asp Ser Glu		
34 39 44 49		
gag ctg agg gac cct gct ggt cca ggg acc ctc atc atg gcc aca gga		367
Glu Leu Arg Asp Pro Ala Gly Pro Gly Thr Leu Ile Met Ala Thr Gly		
50 55 60 65		
gtc cag gac ttt aac cgg aca gag ttt gat cga ctg aat gag atc aaa		415
Val Gln Asp Phe Asn Arg Thr Glu Phe Asp Arg Leu Asn Glu Ile Lys		
66 71 76 81		
ggg cac ctg gaa att gcc tta ttg gaa aaa cat ttc tta cag gag gag		463
Gly His Leu Glu Ile Ala Leu Leu Glu Lys His Phe Leu Gln Glu Glu		
82 87 92 97		
ctc cgg aag ctg cga gaa gaa acc aac gcg gag atg ctg cgg cag gag		511
Leu Arg Lys Leu Arg Glu Glu Thr Asn Ala Glu Met Leu Arg Gln Glu		
98 103 108 113		
ctg gac cgc gag cgg cag cgg cgg atg gag ctg gag cag aag gtg cag		559
Leu Asp Arg Glu Arg Gln Arg Arg Met Glu Leu Glu Gln Lys Val Gln		
114 119 124 129		
gag gtg ctg aag gcc aga acc gag gag cag atg gct cag cag ccc cca		607
Glu Val Leu Lys Ala Arg Thr Glu Glu Gln Met Ala Gln Gln Pro Pro		
130 135 140 145		
aaa ggg cag gcc cag gcc agc aat gga gca gag cgc cgg agc cag ggg		655
Lys Gly Gln Ala Gln Ala Ser Asn Gly Ala Glu Arg Arg Ser Gln Gly		
146 151 156 161		
ctg tcc tcg cgc ctg cag aag tgg ttc tac gag cgg ttc ggg gag tac		703
Leu Ser Ser Arg Leu Gln Lys Trp Phe Tyr Glu Arg Phe Gly Glu Tyr		
162 167 172 177		
gtg gag gac ttc cgg ttc cag ccc gag gag aac act gtg gag aca gag		751
Val Glu Asp Phe Arg Phe Gln Pro Glu Glu Asn Thr Val Glu Thr Glu		
178 183 188 193		
gaa ccc ctg agc gcc cgc agg tta act gaa aat atg aga cgg ctc aag		799
Glu Pro Leu Ser Ala Arg Arg Leu Thr Glu Asn Met Arg Arg Leu Lys		
194 199 204 209		
cgc ggt gcc aag ccg gtc act aac ttt gtg aag aac ctc tct gcc tta		847

Arg	Gly	Ala	Lys	Pro	Val	Thr	Asn	Phe	Val	Lys	Asn	Leu	Ser	Ala	Leu	
210					215					220					225	
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Ser	Asp	Trp	Tyr	Ser	Val	Tyr	Thr	Ser	Ala	Ile	Ala	Phe	Thr	Val	Tyr	
226					231					236					241	
atg	aat	gcc	gtg	tgg	cat	ggc	tgg	gcc	atc	cca	ttg	ttc	tta	ttt	cta	943
Met	Asn	Ala	Val	Trp	His	Gly	Trp	Ala	Ile	Pro	Leu	Phe	Leu	Phe	Leu	
242					247					252					257	
gca	att	ctg	agg	tta	tcc	ctc	aat	tac	ctc	atc	gcc	agg	ggg	tgg	cgg	991
Ala	Ile	Leu	Arg	Leu	Ser	Leu	Asn	Tyr	Leu	Ile	Ala	Arg	Gly	Trp	Arg	
258					263					268					273	
ata	cag	tgg	agc	atc	gtg	ccc	gaa	gtg	tct	gag	ccc	gtg	gaa	cct	cca	1039
Ile	Gln	Trp	Ser	Ile	Val	Pro	Glu	Val	Ser	Glu	Pro	Val	Glu	Pro	Pro	
274					279					284					289	
aag	gaa	gac	ctg	act	gtg	tct	gag	aag	ttc	cag	ctg	gtg	ctg	gac	gtc	1087
Lys	Glu	Asp	Leu	Thr	Val	Ser	Glu	Lys	Phe	Gln	Leu	Val	Leu	Asp	Val	
290					295					300					305	
gcc	cag	aaa	gcc	cag	aac	ctt	ttc	ggg	aag	atg	gct	gac	atc	ctg	gag	1135
Ala	Gln	Lys	Ala	Gln	Asn	Leu	Phe	Gly	Lys	Met	Ala	Asp	Ile	Leu	Glu	
306					311					316					321	
aag	atc	aag	aac	ttg	ttc	atg	tgg	gtc	cag	ccg	gag	atc	aca	cag	aag	1183
Lys	Ile	Lys	Asn	Leu	Phe	Met	Trp	Val	Gln	Pro	Glu	Ile	Thr	Gln	Lys	
322					327					332					337	
ctg	tat	gtg	gcg	ctc	tgg	gct	gcc	ttc	ctg	gcc	tcc	tgc	ttc	ttc	ccc	1231
Leu	Tyr	Val	Ala	Leu	Trp	Ala	Ala	Phe	Leu	Ala	Ser	Cys	Phe	Phe	Pro	
338					343					348					353	
tac	cgc	ctg	gtg	ggg	ctt	gcc	gtg	gga	ctc	tat	gct	ggg	atc	aag	ttc	1279
Tyr	Arg	Leu	Val	Gly	Leu	Ala	Val	Gly	Leu	Tyr	Ala	Gly	Ile	Lys	Phe	
354					359					364					369	
ttc	ctc	att	gat	ttc	atc	ttt	aaa	cgc	tgc	ccg	agg	ctg	cgc	gcc	aag	1327
Phe	Leu	Ile	Asp	Phe	Ile	Phe	Lys	Arg	Cys	Pro	Arg	Leu	Arg	Ala	Lys	
370					375					380					385	
tac	gac	acg	ccc	tat	atc	atc	tgg	agg	agt	ctc	ccc	acc	gac	ccg	cag	1375
Tyr	Asp	Thr	Pro	Tyr	Ile	Ile	Trp	Arg	Ser	Leu	Pro	Thr	Asp	Pro	Gln	
386					391					396					401	
ctc	aag	gag	cgc	tcc	agc	gcc	gca	gtc	tca	cgc	agg	ctg	cag	acg	acc	1423
Leu	Lys	Glu	Arg	Ser	Ser	Ala	Ala	Val	Ser	Arg	Arg	Leu	Gln	Thr	Thr	
402					407					412					417	
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Ser	Ser	Arg	Ser	Tyr	Val	Pro	Ser	Ala	Pro	Ala	Gly	Leu	Gly	Lys	Glu	
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Gly Trp Arg Cys Cys	Leu Ile Asn Arg Asp	Arg Lys Met Pro Thr Asp		
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Tyr Ile Arg Asn Gly	Val Leu Tyr Val Thr	Glu Asn Tyr Leu Cys Phe		
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Glu Ser Ser Lys Ser	Gly Ser Ser Lys Arg	Asn Lys Val Ile Lys Leu		
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Val Asp Ile Thr Asp	Ile Gln Lys Tyr Lys	Val Leu Ser Val Leu Pro		
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Leu Val Phe Gly Ala	Met Val His Arg Asp	Glu Ala Phe Glu Thr Ile		
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Ser Arg Lys Asp Ile Thr Asn Gln Glu Glu Leu Trp Lys Met Lys Pro
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Arg Arg Asn Leu Glu Glu Asp Asp Tyr Leu His Lys Asp Thr Gly Glu
19 24 29 34
acc agc atg cta aaa aga cct gtg ctt ttg cat ttg cac caa aca gcc 319
Thr Ser Met Leu Lys Arg Pro Val Leu Leu His Leu His Gln Thr Ala
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Ala Thr Ser His Gln Gln Tyr Phe Tyr Lys Ile Pro Ile Leu Val Ile
99 104 109 114

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Ser Leu Ser Tyr Pro Met Arg Arg Ser Tyr Arg Tyr Lys Leu Leu Asn	
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Trp Ala Tyr Gln Gln Val Gln Gln Asn Lys Glu Asp Ala Trp Ile Glu	
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His Asp Val Trp Arg Met Glu Ile Tyr Val Ser Leu Gly Ile Val Gly	
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Phe Met Ile Ala Val Phe Leu Pro Ile Val Val Leu Ile Phe Lys Ser	
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Phe Tyr Gln His Leu Leu Leu Tyr Ile Gln Ser His Tyr Gln Leu Glu
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Leu Gln Cys Cys Ile Asp Trp Thr His Val Thr Asp Pro Leu Ile Gly
71 76 81 86

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Cys Lys Lys Pro Val Ser Ala Ser Gly Lys Glu Met Asp Trp Ala Gln
87 92 97 102

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Gln	Asn	Glu	Leu	Ala	Gly	Val	Asp	Thr	Glu	Leu	Leu	Ala	Glu	Arg	Phe	
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Tyr	Tyr	Gln	Ala	Leu	Ser	Val	Ala	Pro	Gln	Ile	Gly	Met	Pro	Phe	Asn	
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Pro Thr Leu Glu Pro	Pro Arg Gly Arg Ser	Glu Ala Pro Asp Ser Leu		
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Pro Glu Asp Met Ala Leu Arg Asn Leu Pro Pro Leu Arg Ala Ala His	
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Met Arg Asp Met Ala Gln Leu Arg Leu Gln Leu Glu Val Ser Gln Leu	
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Glu Gly Ser Leu Gln Gln Pro Lys Ala Gln Ser Ala Met Ser Pro Tyr	
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gacaata atg gtt ttt ggt acc aaa ttc cca gag agt aaa ata gtt ctg 229
Met Val Phe Gly Thr Lys Phe Pro Glu Ser Lys Ile Val Leu
1 5 10
gcc tta aga act aaa cgg gaa ggc cct ggg gaa gtt agg att caa gtt 277

Ala Leu Arg Thr Lys Arg Glu Gly Pro Gly Glu Val Arg Ile Gln Val
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tat gcc tta agg ata ggt gag aat gag aac aca gac aga gaa aga gac 325
Tyr Ala Leu Arg Ile Gly Glu Asn Glu Asn Thr Asp Arg Glu Arg Asp
31 36 41 46

cca act ccc acc ccc tgt ccc cag gga cac cgg atg atg acg gag cct 373
Pro Thr Pro Thr Pro Cys Pro Gln Gly His Arg Met Met Thr Glu Pro
47 52 57 62

agg gag agg aga ggt tac agt gta cca cct aga cca gag gtc cgg acc 421
Arg Glu Arg Arg Gly Tyr Ser Val Pro Pro Arg Pro Glu Val Arg Thr
63 68 73 78

cag gcc acg gag tgg aga gta gaa gaa tct aac ttc aac aag atc ttc 469
Gln Ala Thr Glu Trp Arg Val Glu Glu Ser Asn Phe Asn Lys Ile Phe
79 84 89 94

ctg aaa aaa gac gct gag ctt gga cgg tcc aac cac ctc cct acc tgg 517
Leu Lys Lys Asp Ala Glu Leu Gly Arg Ser Asn His Leu Pro Thr Trp
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Asp Lys Pro Glu Asp Ala Ser Trp Leu Pro Gln Ser Cys Leu Gly Gly
111 116 121 126

gat gct gtg gca acc aca ggg gag att cac gag gag aaa gcc tgg aag 613
Asp Ala Val Ala Thr Thr Gly Glu Ile His Glu Glu Lys Ala Trp Lys
127 132 137 142

acc aga gcc ctg gaa gtg ggg cag cca gcc cag cgg gac att cgt agg 661
Thr Arg Ala Leu Glu Val Gly Gln Pro Ala Gln Arg Asp Ile Arg Arg
143 148 153 158

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Ser Ser Pro Leu Gly Gly Asp Cys Gln Glu Val Thr Thr Leu Thr Val
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Lys Tyr Gln Val Ser Glu Glu Val Pro Ser Gly Thr Val Ile Gly Lys
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Leu Ser Gln Glu Leu Gly Arg Glu Glu Arg Arg Arg Gln Ala Gly Ala
223 228 233 238

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Leu Cys Arg Gln Trp	Asp Pro Cys Leu Val	Ser Phe Asp Val Leu Ala		
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Thr Gly Asp Leu Ala	Leu Ile His Val Glu	Ile Gln Val Leu Asp Ile		
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Asn Asp His Gln Pro	Arg Phe Pro Lys Gly	Glu Gln Glu Leu Glu Ile		
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Asp Pro Asp Thr Gly	Pro Asn Thr Leu His	Thr Tyr Thr Leu Ser Pro		
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Ser Glu His Phe Ala	Leu Asp Val Ile Val	Gly Pro Asp Glu Thr Lys		
351	356	361	366	
cat gca gaa ctc ata	gtg gtg aag gag ctg	gac agg gaa atc cat tca		1333
His Ala Glu Leu Ile	Val Val Lys Glu Leu	Asp Arg Glu Ile His Ser		
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Phe Phe Asp Leu Val	Leu Thr Ala Tyr Asp	Asn Gly Asn Pro Pro Lys		
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tca ggt acc agc ttg	gtc aag gtc aac gtc	ttg gac tcc aat gac aat		1429
Ser Gly Thr Ser Leu	Val Lys Val Asn Val	Leu Asp Ser Asn Asp Asn		
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Ser Pro Ala Phe Ala	Glu Ser Ser Leu Ala	Leu Glu Ile Gln Glu Asp		
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Ala Ala Pro Gly Thr	Leu Leu Ile Lys Leu	Thr Ala Thr Asp Pro Asp		
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caa ggc ccc aat ggg	gag gtg gag ttc ttc	ctc agt aag cac atg cct		1573
Gln Gly Pro Asn Gly	Glu Val Glu Phe Phe	Leu Ser Lys His Met Pro		
447	452	457	462	
cca gag gtg ctg gac	acc ttc agt att gat	gcc aag aca ggc cag gtc		1621
Pro Glu Val Leu Asp	Thr Phe Ser Ile Asp	Ala Lys Thr Gly Gln Val		
463	468	473	478	

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Ile Leu Arg Arg Pro Leu Asp Tyr Glu Lys Asn Pro Ala Tyr Glu Val	
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Asp Val Gln Ala Arg Asp Leu Gly Pro Asn Pro Ile Pro Ala His Cys	
495 500 505 510	
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Lys Val Leu Ile Lys Val Leu Asp Val Asn Asp Asn Ile Pro Ser Ile	
511 516 521 526	
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His Val Thr Trp Ala Ser Gln Pro Ser Leu Val Ser Glu Ala Leu Pro	
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Lys Asp Ser Phe Ile Ala Leu Val Met Ala Asp Asp Leu Asp Ser Gly	
543 548 553 558	
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His Asn Gly Leu Val His Cys Trp Leu Ser Gln Glu Leu Gly His Phe	
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Arg Leu Lys Arg Thr Asn Gly Asn Thr Tyr Met Leu Leu Thr Asn Ala	
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Thr Leu Asp Arg Glu Gln Trp Pro Lys Tyr Thr Leu Thr Leu Ala	
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Gln Asp Gln Gly Leu Gln Pro Leu Ser Ala Lys Lys Gln Leu Ser Ile	
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Gln Ile Ser Asp Ile Asn Asp Asn Ala Pro Val Phe Glu Lys Ser Arg	
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Tyr Glu Val Ser Thr Arg Glu Asn Asn Leu Pro Ser Leu His Leu Ile	
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Thr Ile Lys Ala His Asp Ala Asp Leu Gly Ile Asn Gly Lys Val Ser	
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Tyr Arg Ile Gln Asp Ser Pro Val Ala His Leu Val Ala Ile Asp Ser	
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Ala Thr His Ser Ser Arg Pro Phe Leu Leu Thr Thr Ile Val Ala Arg	
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Gly Asn Glu Ala His Leu Phe Ile Leu Asn Pro His Thr Gly Gln Leu	
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Phe Val Asn Val Thr Asn Ala Ser Ser Leu Ile Gly Ser Glu Trp Glu	
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ctg gag ata gta gta gag gac cag gga agc ccc ccc tta cag acc cga	2773
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847 852 857 862	
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Ala Leu Leu Arg Val Met Phe Val Thr Ser Val Asp His Leu Arg Asp	
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Ser Ala Arg Lys Pro Gly Ala Leu Ser Met Ser Met Leu Thr Val Ile	
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Cys Leu Ala Val Leu Leu Gly Ile Phe Gly Leu Ile Leu Ala Leu Phe	
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Gln	Arg	His	Leu	Asn	Gly	Lys	Val	Ser	Pro	Glu	Lys	Glu	Ser	Gly	Pro	
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Gln Thr Asp Pro Glu Gln Glu Gly Pro Leu Asp Pro Glu Glu Asp				
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Trp Met Ala Arg Leu Ser Leu Pro Leu Thr Thr Asn Tyr Arg Asp Asn				
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Val Ile Ser Pro Asp Ala Ala Ala Thr Glu Glu Pro Arg Thr Phe Gln				
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 Cys Leu Gln Phe Tyr Leu Gln Pro Pro Ser Glu Asn Ile Ser Leu Thr
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 Glu Phe Glu Asn Leu Ala Ile Asp Arg Val Lys Leu Leu Lys Ser Val
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 Ile Leu Arg Leu Ala Tyr Cys Gln Ser Glu Glu Leu Arg Arg Trp Phe
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 Ile Gln Gln Glu Met Asp Leu Leu Arg Phe Arg Phe Ser Ile Leu Pro
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 Lys Asp Lys Ile Gln Asp Phe Leu Lys Asp Ser Gln Leu Gln Phe Glu
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 Ala Ile Ser Asp Glu Glu Lys Thr Leu Arg Glu Gln Glu Ile Val Ala
 153 158 163 168

tca tca cca agt tta agt gga ctt aag ttg ggg ttc gag tcc att tat	639
Ser Ser Pro Ser Leu Ser Gly Leu Lys Leu Gly Phe Glu Ser Ile Tyr	
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Lys Ile Pro Phe Ala Asp Ala Leu Asp Leu Phe Arg Gly Arg Lys Val	
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Tyr Leu Glu Asp Gly Phe Ala Tyr Val Pro Leu Lys Asp Ile Val Ala	
201 206 211 216	
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Ile Ile Leu Asn Glu Phe Arg Ala Lys Leu Ser Lys Ala Leu Ala Leu	
217 222 227 232	
aca gcc agg tcc ttg cct gct gtg cag tct gat gaa aga ctt cag cct	831
Thr Ala Arg Ser Leu Pro Ala Val Gln Ser Asp Glu Arg Leu Gln Pro	
233 238 243 248	
ctg ctg aat cac ctg agt cat tcc tac act ggc caa gat tac agt acc	879
Leu Leu Asn His Leu Ser His Ser Tyr Thr Gly Gln Asp Tyr Ser Thr	
249 254 259 264	
cag gga aat gtt ggg aag att tct tta gat cag att gat ttg ctt tct	927
Gln Gly Asn Val Gly Lys Ile Ser Leu Asp Gln Ile Asp Leu Leu Ser	
265 270 275 280	
acc aaa tcc ttc cca cct tgc atg cgt cag tta cat aaa gcc ttg cgg	975
Thr Lys Ser Phe Pro Pro Cys Met Arg Gln Leu His Lys Ala Leu Arg	
281 286 291 296	
gaa aat cac cat ctt cgt cat gga ggc cga atg cag tat ggc cta ttt	1023
Glu Asn His His Leu Arg His Gly Gly Arg Met Gln Tyr Gly Leu Phe	
297 302 307 312	
ctg aag ggc att ggt tta act ttg gaa cag gca ttg cag ttc tgg aag	1071
Leu Lys Gly Ile Gly Leu Thr Leu Glu Gln Ala Leu Gln Phe Trp Lys	
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Gln Glu Phe Ile Lys Gly Lys Met Gly Ser Arg Gln Val *	
329 334 339	
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caaaaatact ttgagatgat acacaatgtg gatgattgtg gctttttcttt tgagtcaccc	1420
taatcagtac ttttgtgaga gccaacgtat tctaaatggt ggtaaagaca taaagaagga	1480
acctatccaa ccagaaactc ctcaacccaa accaagtgtc cagaaaacca aggatgcac	1540

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 aagggtgacg cgagctctgc cctttaaccg gaaacgtctc cctgctcacc ccacccccgc 180
 gcagacgcag tgctgagcac acagctaccg gacaaagagt gacgccccga gctggagtt 239
 atg gcg gct acg gag ccg atc ttg gcg gcc act ggg agt ccc gcg gcg 287
 Met Ala Ala Thr Glu Pro Ile Leu Ala Ala Thr Gly Ser Pro Ala Ala

1

5

10

15

gtg cac cgg aga aac tgg aag gag ccg gtt cga gct cag ccc ctg agc 335
Val His Arg Arg Asn Trp Lys Glu Pro Val Arg Ala Gln Pro Leu Ser
17 22 27 32

gta act gtg tgg gct cct cgc tgc cag agg cct cac cgc ctg ccc ctg 383
Val Thr Val Trp Ala Pro Arg Cys Gln Arg Pro His Arg Leu Pro Leu
33 38 43 48

agc ctt cca gtc cca acg ccg cgg tcc ctg aag cca tcc cta cgc ccc 431
Ser Leu Pro Val Pro Thr Pro Arg Ser Leu Lys Pro Ser Leu Arg Pro
49 54 59 64

gag ctg cgg cct ccg cgg ccc tgg agc tgc ctc tcg ggc ccg cac ccg 479
Glu Leu Arg Pro Pro Arg Pro Trp Ser Cys Leu Ser Gly Pro His Pro
65 70 75 80

tga gcgt agcgccctcag gccgaagctg aagcgcgctc cacaccaggc cccgccggct 536
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81

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cgggtccccg ggaggtttc cggcagctgc gggagctgtc ccgccagtgg ctgcggcctg 656

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gagcgggtgga gctgcggggc gccagggccg ggcgctctgt gcggactggg gccatgatcg 836

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gcgggtctcg gtcgcggggc ccgtttgcag agccccgggc gccgggagga ctttgttctt 180

cttcagaaga gaaaactgaa gaaggagga atg gct gtg ggg ctt tgt aaa gcc 233
Met Ala Val Gly Leu Cys Lys Ala
1 5

atg tcc cag ggg ttg gtg acc ttc aga gat gtg gcg cta gac ttt tcc	281
Met Ser Gln Gly Leu Val Thr Phe Arg Asp Val Ala Leu Asp Phe Ser	
9 14 19 24	
caa gaa gag tgg gaa tgg ctg aag cca tct cag aag gat tta tac aga	329
Gln Glu Glu Trp Glu Trp Leu Lys Pro Ser Gln Lys Asp Leu Tyr Arg	
25 30 35 40	
gat gtc atg ttg gag aac tac agg aac ttg gta tgg ctt gga ctc tcc	377
Asp Val Met Leu Glu Asn Tyr Arg Asn Leu Val Trp Leu Gly Leu Ser	
41 46 51 56	
att tct aag ccc aac atg atc tcc tta ctg gag caa ggg aag gaa ccg	425
Ile Ser Lys Pro Asn Met Ile Ser Leu Leu Glu Gln Gly Lys Glu Pro	
57 62 67 72	
tgg atg gtg gag aga aag atg tca cag ggt cac tgt gca gac tgg gag	473
Trp Met Val Glu Arg Lys Met Ser Gln Gly His Cys Ala Asp Trp Glu	
73 78 83 88	
tct tgg tgt gaa att gag gaa tta tct cca aaa tgg ttc att gat gaa	521
Ser Trp Cys Glu Ile Glu Glu Leu Ser Pro Lys Trp Phe Ile Asp Glu	
89 94 99 104	
gat gaa ata tcc cag gag atg gta atg gaa agg cta gca agt cat ggc	569
Asp Glu Ile Ser Gln Glu Met Val Met Glu Arg Leu Ala Ser His Gly	
105 110 115 120	
ctt gaa tgc tcc agt ttc aga gaa gcc tgg aaa tat aag ggt gaa ttt	617
Leu Glu Cys Ser Ser Phe Arg Glu Ala Trp Lys Tyr Lys Gly Glu Phe	
121 126 131 136	
gag cta cat cag gga aat gcg gag agg cat ttc atg caa gtg aca gct	665
Glu Leu His Gln Gly Asn Ala Glu Arg His Phe Met Gln Val Thr Ala	
137 142 147 152	
gtt aag gaa atc tct act ggg aaa aga gac aat gaa ttt agt aat tct	713
Val Lys Glu Ile Ser Thr Gly Lys Arg Asp Asn Glu Phe Ser Asn Ser	
153 158 163 168	
ggg aga agc ata ccc ctg aaa tca gta ttt tta aca caa cag aaa gtt	761
Gly Arg Ser Ile Pro Leu Lys Ser Val Phe Leu Thr Gln Gln Lys Val	
169 174 179 184	
cct acc ata cag caa gta cat aaa ttt gat att tat gat aaa ctc ttc	809
Pro Thr Ile Gln Gln Val His Lys Phe Asp Ile Tyr Asp Lys Leu Phe	
185 190 195 200	
ccc caa aat tca gtc ata att gaa tat aaa aga ctc cat gct gag aag	857
Pro Gln Asn Ser Val Ile Ile Glu Tyr Lys Arg Leu His Ala Glu Lys	
201 206 211 216	
gaa tct ttg ata ggt aat gaa tgt gaa gaa ttc aac cag agt acg tac	905
Glu Ser Leu Ile Gly Asn Glu Cys Glu Glu Phe Asn Gln Ser Thr Tyr	
217 222 227 232	

ctt agt aaa gat ata gga att cct cct ggg gag aaa cct tat gaa agt	953
Leu Ser Lys Asp Ile Gly Ile Pro Pro Gly Glu Lys Pro Tyr Glu Ser	
233 238 243 248	
cat gat ttt tca aag ctc tta agt ttc cac tca tta ttt act caa cat	1001
His Asp Phe Ser Lys Leu Leu Ser Phe His Ser Leu Phe Thr Gln His	
249 254 259 264	
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Gln Thr Thr His Phe Gly Lys Leu Pro His Gly Tyr Asp Glu Cys Gly	
265 270 275 280	
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Asp Ala Phe Ser Cys Tyr Ser Phe Phe Thr Gln Pro Gln Arg Ile His	
281 286 291 296	
agt gga gaa aaa cca tat gca tgc aat gac tgt gga aaa gcc ttt agc	1145
Ser Gly Glu Lys Pro Tyr Ala Cys Asn Asp Cys Gly Lys Ala Phe Ser	
297 302 307 312	
cac gac ttc ttt ctc agt gaa cat caa aga act cat att ggg gag aaa	1193
His Asp Phe Phe Leu Ser Glu His Gln Arg Thr His Ile Gly Glu Lys	
313 318 323 328	
cct tat gaa tgt aag gaa tgt aac aaa gct ttc aga cag agt gct cac	1241
Pro Tyr Glu Cys Lys Glu Cys Asn Lys Ala Phe Arg Gln Ser Ala His	
329 334 339 344	
ctt gct caa cat cag agg atc cac act gga gag aaa ccg ttt gcg tgc	1289
Leu Ala Gln His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Ala Cys	
345 350 355 360	
aat gaa tgt ggg aag gcc ttt agc cgt tat gcc ttc ctt gtt gaa cat	1337
Asn Glu Cys Gly Lys Ala Phe Ser Arg Tyr Ala Phe Leu Val Glu His	
361 366 371 376	
cag aga att cac aca ggt gag aaa cca tat gaa tgt aaa gaa tgt aat	1385
Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Asn	
377 382 387 392	
aaa gcc ttc aga cag agt gct cac ctt aat caa cat cag agg att cac	1433
Lys Ala Phe Arg Gln Ser Ala His Leu Asn Gln His Gln Arg Ile His	
393 398 403 408	
act gga gag aaa ccc tat gaa tgt aat cag tgt gga aaa gcc ttc agc	1481
Thr Gly Glu Lys Pro Tyr Glu Cys Asn Gln Cys Gly Lys Ala Phe Ser	
409 414 419 424	
aga cgc ata gcc ctt act cta cat caa aga att cac aca gga gag aaa	1529
Arg Arg Ile Ala Leu Thr Leu His Gln Arg Ile His Thr Gly Glu Lys	
425 430 435 440	
ccc ttc aaa tgt agt gaa tgt ggg aag acc ttt gcc tat cgc tca cac	1577
Pro Phe Lys Cys Ser Glu Cys Gly Lys Thr Phe Gly Tyr Arg Ser His	
441 446 451 456	
ctg aat caa cat cag aga att cat acc gga gaa aag ccc tat gaa tgc	1625

Leu	Asn	Gln	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Glu	Cys		
457					462					467					472		
atc	aaa	tgt	ggg	aag	ttt	ttt	agg	act	gac	tca	caa	ctt	aat	cga	cat	1673	
Ile	Lys	Cys	Gly	Lys	Phe	Phe	Arg	Thr	Asp	Ser	Gln	Leu	Asn	Arg	His		
473					478					483					488		
cat	aga	att	cac	act	gga	gag	aga	cca	ttt	gaa	tgc	agt	aaa	tgt	ggg	1721	
His	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Phe	Glu	Cys	Ser	Lys	Cys	Gly		
489					494					499					504		
aaa	gcc	ttc	agt	gat	gct	tta	gtt	cta	att	cac	cat	aag	aga	agt	cat	1769	
Lys	Ala	Phe	Ser	Asp	Ala	Leu	Val	Leu	Ile	His	His	Lys	Arg	Ser	His		
505					510					515					520		
gca	gga	gag	aaa	ccc	tat	gaa	tgt	aac	aaa	tgt	gga	aag	gcc	ttc	agt	1817	
Ala	Gly	Glu	Lys	Pro	Tyr	Glu	Cys	Asn	Lys	Cys	Gly	Lys	Ala	Phe	Ser		
521					526					531					536		
tgt	ggc	tca	tat	ctt	aat	caa	cat	caa	aga	att	cat	act	gga	gag	aaa	1865	
Cys	Gly	Ser	Tyr	Leu	Asn	Gln	His	Gln	Arg	Ile	His	Thr	Gly	Glu	Lys		
537					542					547					552		
ccc	tat	gaa	tgt	agt	gaa	tgt	ggg	aag	gct	ttt	cat	cag	atc	ttg	tcc	1913	
Pro	Tyr	Glu	Cys	Ser	Glu	Cys	Gly	Lys	Ala	Phe	His	Gln	Ile	Leu	Ser		
553					558					563					568		
cta	aga	cta	cac	cag	aga	att	cac	gct	gga	gaa	aaa	cct	tat	aaa	tgt	1961	
Leu	Arg	Leu	His	Gln	Arg	Ile	His	Ala	Gly	Glu	Lys	Pro	Tyr	Lys	Cys		
569					574					579					584		
aac	gaa	tca	caa	aga	gtc	cgg	cgc	tca	gag	cta	gcg	gtt	tcc	cga	gga	2009	
Asn	Glu	Ser	Gln	Arg	Val	Arg	Arg	Ser	Glu	Leu	Ala	Val	Ser	Arg	Gly		
585					590					595					600		
ctc	acc	acc	aag	ccc	gcg	gac	aca	ggc	ccc	gat	tcc	aca	ctt	aac	gct	2057	
Leu	Thr	Thr	Lys	Pro	Ala	Asp	Thr	Gly	Pro	Asp	Ser	Thr	Leu	Asn	Ala		
601					606					611					616		
gcc	aaa	gtg	gca	gag	ccg	gcg	cgg	gct	ggg	aca	gag	gcg	gca	ctg	agg	2105	
Ala	Lys	Val	Ala	Glu	Pro	Ala	Arg	Ala	Gly	Thr	Glu	Ala	Ala	Leu	Arg		
617					622					627					632		
ccg	gcg	ctg	tcg	gtg	gct	gag	agc	gcc	aca	agt	ctc	ggt	ccg	tta	cac	2153	
Pro	Ala	Leu	Ser	Val	Ala	Glu	Ser	Ala	Thr	Ser	Leu	Gly	Pro	Leu	His		
633					638					643					648		
cag	ggg	cga	cgc	ttc	cca	gag	gcc	ccc	gcg	gct	cac	ccg	ggc	ggg	act	2201	
Gln	Gly	Arg	Arg	Phe	Pro	Glu	Ala	Pro	Ala	Ala	His	Pro	Gly	Gly	Thr		
649					654					659					664		
ggc	ttc	act	gtt	tgc	gcg	tcc	tga	gaagcagacc	acggtgttcc	agggctcaca						2255	
Gly	Phe	Thr	Val	Cys	Ala	Ser	*										
665					670												
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Ala Leu Gly Pro Pro Leu Ala Pro Gly Val Arg Gly Ser Glu Ala Glu
12 17 22 27

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Gly Arg Leu Arg Glu Lys Leu Phe Ser Gly Tyr Asp Ser Ser Val Arg
28 33 38 43

cca gcg cgg gag gtg gga gac cgt gtc agg gtc agc gtt ggt ctc atc 193
Pro Ala Arg Glu Val Gly Asp Arg Val Arg Val Ser Val Gly Leu Ile
44 49 54 59

ctg gcg caa ctc atc agc ctg aac gag aag gat gaa gag atg agc aca 241
Leu Ala Gln Leu Ile Ser Leu Asn Glu Lys Asp Glu Glu Met Ser Thr
60 65 70 75

aag gtg tac tta gac ctg gag tgg act gac tac agg ctg agc tgg gac 289
Lys Val Tyr Leu Asp Leu Glu Trp Thr Asp Tyr Arg Leu Ser Trp Asp
76 81 86 91

cct gcg gag cac gac ggc atc gat tcg ctc cgc atc acg gcg gaa tcc 337
Pro Ala Glu His Asp Gly Ile Asp Ser Leu Arg Ile Thr Ala Glu Ser
92 97 102 107

gtg tgg ctc cct gac gtg gtg cta ctg aac aac aat gat ggg aat ttt 385
Val Trp Leu Pro Asp Val Val Leu Leu Asn Asn Asn Asp Gly Asn Phe
108 113 118 123

gac gtg gct ctg gac att agc gtc gtg gtg tcc tcc gac ggc tcc gtg 433
Asp Val Ala Leu Asp Ile Ser Val Val Val Ser Ser Asp Gly Ser Val
124 129 134 139

cgt tgg caa ccc ccg ggc atc tat cgc agc agc tgc agc atc cag gtc 481
Arg Trp Gln Pro Pro Gly Ile Tyr Arg Ser Ser Cys Ser Ile Gln Val
140 145 150 155

acc tac ttc ccc ttc gac tgg cag aat tgc act atg gtg ttc agc tcc	529
Thr Tyr Phe Pro Phe Asp Trp Gln Asn Cys Thr Met Val Phe Ser Ser	
156 161 166 171	
tac agc tac gac agc tgc gag gtc agc ctg cag aca ggc ctg ggt cct	577
Tyr Ser Tyr Asp Ser Ser Glu Val Ser Leu Gln Thr Gly Leu Gly Pro	
172 177 182 187	
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Asp Gly Gln Gly His Gln Glu Ile His Ile His Glu Gly Thr Phe Ile	
188 193 198 203	
gag aat ggc cag tgg gag aat atc cac aag ccc tct cgg cta atc cag	673
Glu Asn Gly Gln Trp Glu Asn Ile His Lys Pro Ser Arg Leu Ile Gln	
204 209 214 219	
cct cca ggc gat cct agg gga ggg agg gaa gga cag cgc cag gaa gtc	721
Pro Pro Gly Asp Pro Arg Gly Gly Arg Glu Gly Gln Arg Gln Glu Val	
220 225 230 235	
atc ttc tac ctc atc atc cgc cgc aag cct ctc ttc tac ctg gtc aac	769
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Val Ile Ala Pro Cys Ile Leu Ile Thr Leu Leu Ala Ile Phe Val Phe	
252 257 262 267	
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Tyr Leu Pro Pro Asp Ala Gly Glu Lys Met Gly Leu Ser Ile Phe Ala	
268 273 278 283	
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Leu Leu Thr Leu Thr Val Phe Leu Leu Leu Leu Ala Asp Lys Val Pro	
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Glu Thr Ser Leu Ser Val Pro Ile Ile Ile Lys Tyr Leu Met Phe Thr	
300 305 310 315	
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Met Val Leu Val Thr Phe Ser Val Ile Leu Ser Val Val Val Leu Asn	
316 321 326 331	
ctg cac cac cgc tca ccc cac acc cac caa atg ccc ctt tgg gtc cgt	1057
Leu His His Arg Ser Pro His Thr His Gln Met Pro Leu Trp Val Arg	
332 337 342 347	
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Gln Ile Phe Ile His Lys Leu Pro Leu Tyr Leu Arg Leu Lys Arg Pro	
348 353 358 363	
aaa ccc gag aga gac ctg atg ccg gag ccc cct cac tgt tct tct cca	1153
Lys Pro Glu Arg Asp Leu Met Pro Glu Pro Pro His Cys Ser Ser Pro	
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380					385					390					395	
cca	agt	gat	ttt	ctc	ttc	ccc	aaa	ccc	aat	agg	ttc	cag	cct	gaa	ctg	1249
Pro	Ser	Asp	Phe	Leu	Phe	Pro	Lys	Pro	Asn	Arg	Phe	Gln	Pro	Glu	Leu	
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Ser	Ala	Pro	Asp	Leu	Arg	Arg	Phe	Ile	Asp	Gly	Pro	Asn	Arg	Ala	Val	
412					417					422					427	
gcc	ctg	ctt	ccg	gag	cta	cgg	gag	gtc	gtc	tcc	tct	atc	agc	tac	atc	1345
Ala	Leu	Leu	Pro	Glu	Leu	Arg	Glu	Val	Val	Ser	Ser	Ile	Ser	Tyr	Ile	
428					433					438					443	
gct	cga	cag	ctg	cag	gaa	cag	gag	gac	cac	gat	gcg	ctg	aag	gag	gac	1393
Ala	Arg	Gln	Leu	Gln	Glu	Gln	Glu	Asp	His	Asp	Ala	Leu	Lys	Glu	Asp	
444					449					454					459	
tgg	cag	ttt	gtg	gcc	atg	gta	gtg	gac	cgc	ctc	ttc	ctg	tgg	act	ttc	1441
Trp	Gln	Phe	Val	Ala	Met	Val	Val	Asp	Arg	Leu	Phe	Leu	Trp	Thr	Phe	
460					465					470					475	
atc	atc	ttc	acc	agc	gtt	ggg	acc	cta	gtc	atc	ttc	ctg	gac	gcc	acg	1489
Ile	Ile	Phe	Thr	Ser	Val	Gly	Thr	Leu	Val	Ile	Phe	Leu	Asp	Ala	Thr	
476					481					486					491	
tac	cac	ttg	ccc	cct	cca	gac	ccc	ttt	cct	tga	agactgga	gggttgagac				1540
Tyr	His	Leu	Pro	Pro	Pro	Asp	Pro	Phe	Pro	*						
492					497					502						
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gcctottaac	tccttcacga	ggaatctggg	cctcttattt	cgtttctggg	gactgcattg											1660
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 Met Gln Asp Arg Glu Asp Gln Ser Ile Leu Cys Thr Gly Glu Ser Gly
 162 167 172 177

 gct ggc aag acg gag aac acc aag aag gtc atc cag tat ctg gcg tac 813
 Ala Gly Lys Thr Glu Asn Thr Lys Lys Val Ile Gln Tyr Leu Ala Tyr
 178 183 188 193

gtg gcg tcc tcg cac aag agc aag aag gac cag ggc gag ctg gag cgg	861
Val Ala Ser Ser His Lys Ser Lys Lys Asp Gln Gly Glu Leu Glu Arg	
194 199 204 209	
cag ctg ctg cag gcc aac ccc atc ctg gag gcc ttc ggg aac gcc aag	909
Gln Leu Leu Gln Ala Asn Pro Ile Leu Glu Ala Phe Gly Asn Ala Lys	
210 215 220 225	
acc gtg aag aat gac aac tcc tcc cgc ttc ggc aaa ttc att cgc atc	957
Thr Val Lys Asn Asp Asn Ser Ser Arg Phe Gly Lys Phe Ile Arg Ile	
226 231 236 241	
aac ttt gat gtc aat ggc tac att gtt gga gcc aac att gag act tat	1005
Asn Phe Asp Val Asn Gly Tyr Ile Val Gly Ala Asn Ile Glu Thr Tyr	
242 247 252 257	
ctt ttg gag aaa tct cgt gct atc cgc caa gcc aag gaa gaa cgg acc	1053
Leu Leu Glu Lys Ser Arg Ala Ile Arg Gln Ala Lys Glu Glu Arg Thr	
258 263 268 273	
ttc cac atc ttc tat tat ctc ctg tct ggg gct gga gag cac ctg aag	1101
Phe His Ile Phe Tyr Tyr Leu Leu Ser Gly Ala Gly Glu His Leu Lys	
274 279 284 289	
acc gat ctc ctg ttg gag ccg tac aac aaa tac cgc ttc ctg tcc aat	1149
Thr Asp Leu Leu Leu Glu Pro Tyr Asn Lys Tyr Arg Phe Leu Ser Asn	
290 295 300 305	
gga cac gtc acc atc ccc ggg cag cag gac aag gac atg ttc cag gag	1197
Gly His Val Thr Ile Pro Gly Gln Gln Asp Lys Asp Met Phe Gln Glu	
306 311 316 321	
acc atg gag gcc atg agg att atg ggc atc cca gaa gag gag caa atg	1245
Thr Met Glu Ala Met Arg Ile Met Gly Ile Pro Glu Glu Glu Gln Met	
322 327 332 337	
ggc ctg ctg cgg gtc atc tca ggg gtt ctt cag ctc ggc aac atc gtc	1293
Gly Leu Leu Arg Val Ile Ser Gly Val Leu Gln Leu Gly Asn Ile Val	
338 343 348 353	
ttc aag aag gag cgg aac act gac cag gcg tcc atg ccc gac aac aca	1341
Phe Lys Lys Glu Arg Asn Thr Asp Gln Ala Ser Met Pro Asp Asn Thr	
354 359 364 369	
gct gcc caa aag gtg tcc cat ctc ttg ggt atc aat gtg acc gat ttc	1389
Ala Ala Gln Lys Val Ser His Leu Leu Gly Ile Asn Val Thr Asp Phe	
370 375 380 385	
acc aga gga atc ctc acc ccg cgc atc aag gtg gga cgg gat tac gtc	1437
Thr Arg Gly Ile Leu Thr Pro Arg Ile Lys Val Gly Arg Asp Tyr Val	
386 391 396 401	
cag aag gcg cag act aaa gag cag gct gac ttt gcc atc gag gcc ttg	1485
Gln Lys Ala Gln Thr Lys Glu Gln Ala Asp Phe Ala Ile Glu Ala Leu	
402 407 412 417	

gcc aag gcg acc tat gag cgg atg ttc cgc tgg ctg gtg ctg cgc atc	1533
Ala Lys Ala Thr Tyr Glu Arg Met Phe Arg Trp Leu Val Leu Arg Ile	
418 423 428 433	
aac aag gct ctg gac aag acc aag agg cag ggc gcc tcc ttc atc ggg	1581
Asn Lys Ala Leu Asp Lys Thr Lys Arg Gln Gly Ala Ser Phe Ile Gly	
434 439 444 449	
atc ctg gac att gcc ggc ttc gag atc ttt gat ctg aac tcg ttt gag	1629
Ile Leu Asp Ile Ala Gly Phe Glu Ile Phe Asp Leu Asn Ser Phe Glu	
450 455 460 465	
cag ctg tgc atc aat tac acc aat gag aag ctg cag cag ctc ttc aac	1677
Gln Leu Cys Ile Asn Tyr Thr Asn Glu Lys Leu Gln Gln Leu Phe Asn	
466 471 476 481	
cac acc atg ttc atc ctg gag cag gag gag tac cag cgc gag ggc atc	1725
His Thr Met Phe Ile Leu Glu Gln Glu Glu Tyr Gln Arg Glu Gly Ile	
482 487 492 497	
gag tgg aac ttc atc gac ttt ggc ctc gac ctg cag ccc tgc atc gac	1773
Glu Trp Asn Phe Ile Asp Phe Gly Leu Asp Leu Gln Pro Cys Ile Asp	
498 503 508 513	
ctc att gag aag cca gca ggc ccc ccg ggc att ctg gcc ctg ctg gac	1821
Leu Ile Glu Lys Pro Ala Gly Pro Pro Gly Ile Leu Ala Leu Leu Asp	
514 519 524 529	
gag gag tgc tgg ttc ccc aaa gcc acc gac aag agc ttc gtg gag aag	1869
Glu Glu Cys Trp Phe Pro Lys Ala Thr Asp Lys Ser Phe Val Glu Lys	
530 535 540 545	
gtg atg cag gag cag ggc acc cac ccc aag ttc cag aag ccc aag cag	1917
Val Met Gln Glu Gln Gly Thr His Pro Lys Phe Gln Lys Pro Lys Gln	
546 551 556 561	
ctg aag gac aaa gct gat ttc tgc att atc cac tat gcc ggc aag gtg	1965
Leu Lys Asp Lys Ala Asp Phe Cys Ile Ile His Tyr Ala Gly Lys Val	
562 567 572 577	
gat tac aaa gct gac gag tgg ctg atg aag aac atg gat ccc ctg aat	2013
Asp Tyr Lys Ala Asp Glu Trp Leu Met Lys Asn Met Asp Pro Leu Asn	
578 583 588 593	
gac aac atc gcc aca ctg ctc cac cag tcc tct gac aag ttt gtc tcg	2061
Asp Asn Ile Ala Thr Leu Leu His Gln Ser Ser Asp Lys Phe Val Ser	
594 599 604 609	
gag ctg tgg aag gat gtg gac cgc atc atc ggc ctg gac cag gtg gcc	2109
Glu Leu Trp Lys Asp Val Asp Arg Ile Ile Gly Leu Asp Gln Val Ala	
610 615 620 625	
ggc atg tcg gag acc gca ctg ccc ggg gcc ttc aag acg cgg aag ggc	2157
Gly Met Ser Glu Thr Ala Leu Pro Gly Ala Phe Lys Thr Arg Lys Gly	
626 631 636 641	
atg ttc cgc act gtg ggg cag ctt tac aag gag cag ctg gcc aag ctg	2205

Met	Phe	Arg	Thr	Val	Gly	Gln	Leu	Tyr	Lys	Glu	Gln	Leu	Ala	Lys	Leu		
642					647					652					657		
atg	gct	acg	ctg	agg	aac	acg	aac	ccc	aac	ttt	gtc	cgc	tgc	atc	atc	2253	
Met	Ala	Thr	Leu	Arg	Asn	Thr	Asn	Pro	Asn	Phe	Val	Arg	Cys	Ile	Ile		
658					663					668					673		
ccc	aac	cac	gag	aag	aag	gcc	ggc	aag	ctg	gac	ccg	cat	ctc	gtg	ctg	2301	
Pro	Asn	His	Glu	Lys	Lys	Ala	Gly	Lys	Leu	Asp	Pro	His	Leu	Val	Leu		
674					679					684					689		
gac	cag	ctg	cgc	tgc	aac	ggg	gtt	ctc	gag	ggc	atc	cgt	atc	tgc	cgc	2349	
Asp	Gln	Leu	Arg	Cys	Asn	Gly	Val	Leu	Glu	Gly	Ile	Arg	Ile	Cys	Arg		
690					695					700					705		
cag	ggc	ttc	ccc	aac	agg	gtg	gtc	ttc	cag	gag	ttt	cgg	cag	aga	tat	2397	
Gln	Gly	Phe	Pro	Asn	Arg	Val	Val	Phe	Gln	Glu	Phe	Arg	Gln	Arg	Tyr		
706					711					716					721		
gag	atc	ctg	act	cca	aac	tcc	att	ccc	aag	ggg	ttc	atg	gac	ggg	aag	2445	
Glu	Ile	Leu	Thr	Pro	Asn	Ser	Ile	Pro	Lys	Gly	Phe	Met	Asp	Gly	Lys		
722					727					732					737		
cag	gcg	tgc	gtg	ctc	atg	ata	aaa	gcc	ctg	gag	ctc	gac	agc	aat	ctg	2493	
Gln	Ala	Cys	Val	Leu	Met	Ile	Lys	Ala	Leu	Glu	Leu	Asp	Ser	Asn	Leu		
738					743					748					753		
tac	cgc	att	ggc	cag	agc	aaa	gtc	ttc	ttc	cgt	gcc	ggg	gtg	ctg	gcc	2541	
Tyr	Arg	Ile	Gly	Gln	Ser	Lys	Val	Phe	Phe	Arg	Ala	Gly	Val	Leu	Ala		
754					759					764					769		
cac	ctg	gag	gag	gag	cga	gac	ctg	aag	atc	acc	gac	gtc	atc	ata	ggg	2589	
His	Leu	Glu	Glu	Glu	Arg	Asp	Leu	Lys	Ile	Thr	Asp	Val	Ile	Ile	Gly		
770					775					780					785		
ttc	cag	gcc	tgc	tgc	agg	ggc	tac	ctg	gcc	agg	aaa	gca	ttt	gcc	aag	2637	
Phe	Gln	Ala	Cys	Cys	Arg	Gly	Tyr	Leu	Ala	Arg	Lys	Ala	Phe	Ala	Lys		
786					791					796					801		
cgg	cag	cag	cag	ctt	acc	gcc	atg	aag	gtc	ctc	cag	cgg	aac	tgc	gct	2685	
Arg	Gln	Gln	Gln	Leu	Thr	Ala	Met	Lys	Val	Leu	Gln	Arg	Asn	Cys	Ala		
802					807					812					817		
gcc	tac	ctg	aag	ctg	cgg	aac	tgg	cag	tgg	tgg	cgg	ctc	ttc	acc	aag	2733	
Ala	Tyr	Leu	Lys	Leu	Arg	Asn	Trp	Gln	Trp	Trp	Arg	Leu	Phe	Thr	Lys		
818					823					828					833		
gtc	aag	ccg	ctg	ctg	cag	gtg	agc	cgg	cag	gag	gag	gag	atg	atg	gcc	2781	
Val	Lys	Pro	Leu	Leu	Gln	Val	Ser	Arg	Gln	Glu	Glu	Glu	Met	Met	Ala		
834					839					844					849		
aag	gag	gag	gag	ctg	gtg	aag	gtc	aga	gag	aag	cag	ctg	gct	gcg	gag	2829	
Lys	Glu	Glu	Glu	Leu	Val	Lys	Val	Arg	Glu	Lys	Gln	Leu	Ala	Ala	Glu		
850					855					860					865		
aac	agg	ctc	acg	gag	atg	gag	acg	ctg	cag	tct	cag	ctc	atg	gca	gag	2877	
Asn	Arg	Leu	Thr	Glu	Met	Glu	Thr	Leu	Gln	Ser	Gln	Leu	Met	Ala	Glu		

866	871	876	881	
aaa ttg cag ctg cag	gag cag ctc cag gca	gaa acc gag ctg tgt gcc		2925
Lys Leu Gln Leu Gln	Glu Gln Leu Gln Ala	Glu Thr Glu Leu Cys Ala		
882	887	892	897	
gag gct gag gag ctc	cgg gcc cgc ctg acc	gcc aag aag cag gaa tta		2973
Glu Ala Glu Glu Leu	Arg Ala Arg Leu Thr	Ala Lys Lys Gln Glu Leu		
898	903	908	913	
gaa gag atc tgc cat	gac cta gag gcc agg	gtg gag gag gag gag gag		3021
Glu Glu Ile Cys His	Asp Leu Glu Ala Arg	Val Glu Glu Glu Glu Glu		
914	919	924	929	
cgc tgc cag cac ctg	cag gcg gag aag aag	aag atg cag cag aac atc		3069
Arg Cys Gln His Leu	Gln Ala Glu Lys Lys	Lys Met Gln Gln Asn Ile		
930	935	940	945	
cag gag ctt gag gag	cag ctg gag gag gag	gag agc gcc cgg cag aag		3117
Gln Glu Leu Glu Glu	Gln Leu Glu Glu Glu	Glu Ser Ala Arg Gln Lys		
946	951	956	961	
ctg cag ctg gag aag	gtg acc acc gag gcg	aag ctg aaa aag ctg gag		3165
Leu Gln Leu Glu Lys	Val Thr Thr Glu Ala	Lys Leu Lys Lys Leu Glu		
962	967	972	977	
gag gag cag atc atc	ctg gag gac cag aac	tgc aag ctg gcc aag gaa		3213
Glu Glu Gln Ile Ile	Leu Glu Asp Gln Asn	Cys Lys Leu Ala Lys Glu		
978	983	988	993	
aag aaa ctg ctg gaa	gac aga ata gct gag	ttc acc acc aac ctc aca		3261
Lys Lys Leu Leu Glu	Asp Arg Ile Ala Glu	Phe Thr Thr Asn Leu Thr		
994	999	1004	1009	
gaa gag gag gag aaa	tct aag agc ctc gcc	aag ctg aag aac aag cat		3309
Glu Glu Glu Glu Lys	Ser Lys Ser Leu Ala	Lys Leu Lys Asn Lys His		
1010	1015	1020	1025	
gag gca atg atc act	gac ttg gaa gag cgc	ctc cgc agg gag gag aag		3357
Glu Ala Met Ile Thr	Asp Leu Glu Glu Arg	Leu Arg Arg Glu Glu Lys		
1026	1031	1036	1041	
cag cga cag gag ctg	gag aag acc cgc cgg	aag ctg gag gga gac tcc		3405
Gln Arg Gln Glu Leu	Glu Lys Thr Arg Arg	Lys Leu Glu Gly Asp Ser		
1042	1047	1052	1057	
aca gac ctc agc gac	cag atc gcc gag ctc	cag gcc cag atc gcg gag		3453
Thr Asp Leu Ser Asp	Gln Ile Ala Glu Leu	Gln Ala Gln Ile Ala Glu		
1058	1063	1068	1073	
ctc aag atg cag ctg	gcc aag aaa gag gag	gag ctc cag gcc gcc ctg		3501
Leu Lys Met Gln Leu	Ala Lys Lys Glu Glu	Glu Glu Leu Gln Ala Ala		
1074	1079	1084	1089	
gcc aga gtg gaa gag	gaa gct gcc cag aag	aac atg gcc ctc aag aag		3549
Ala Arg Val Glu Glu	Glu Ala Ala Gln Lys	Asn Met Ala Leu Lys Lys		
1090	1095	1100	1105	

atc cgg gag ctg gaa tct cag atc tct gaa ctc cag gaa gac ctg gag	3597
Ile Arg Glu Leu Glu Ser Gln Ile Ser Glu Leu Gln Glu Asp Leu Glu	
1106 1111 1116 1121	
tct gag cgt gct tcc agg aat aaa gct gag aag cag aaa cgg gac ctt	3645
Ser Glu Arg Ala Ser Arg Asn Lys Ala Glu Lys Gln Lys Arg Asp Leu	
1122 1127 1132 1137	
ggg gaa gag cta gag gct ctg aaa aca gag ttg gag gac acg ctg gat	3693
Gly Glu Glu Leu Glu Ala Leu Lys Thr Glu Leu Glu Asp Thr Leu Asp	
1138 1143 1148 1153	
tcc aca gct gcc cag cag gag ctc agg tca aaa cgt gag cag gag gtg	3741
Ser Thr Ala Ala Gln Gln Glu Leu Arg Ser Lys Arg Glu Gln Glu Val	
1154 1159 1164 1169	
aac atc ctg aag aag acc ctg gag gag gag gcc aag acc cac gag gcc	3789
Asn Ile Leu Lys Lys Thr Leu Glu Glu Glu Ala Lys Thr His Glu Ala	
1170 1175 1180 1185	
cag atc cag gag atg agg cag aag cac tca cag gcc gtg gag gag ctg	3837
Gln Ile Gln Glu Met Arg Gln Lys His Ser Gln Ala Val Glu Glu Leu	
1186 1191 1196 1201	
gcg gag cag ctg gag cag acg aag cgg gtg aaa gca aac ctc gag aag	3885
Ala Glu Gln Leu Glu Gln Thr Lys Arg Val Lys Ala Asn Leu Glu Lys	
1202 1207 1212 1217	
gca aag cag act ctg gag aac gag cgg ggg gag ctg gcc aac gag gtg	3933
Ala Lys Gln Thr Leu Glu Asn Glu Arg Gly Glu Leu Ala Asn Glu Val	
1218 1223 1228 1233	
aag gtg ctg ctg cag ggc aaa ggg gac tgc gag cac aag cgc aag aaa	3981
Lys Val Leu Leu Gln Gly Lys Gly Asp Ser Glu His Lys Arg Lys Lys	
1234 1239 1244 1249	
gtg gag gcg cag ctg cag gag ctg cag gtc aag ttc aac gag gga gag	4029
Val Glu Ala Gln Leu Gln Glu Leu Gln Val Lys Phe Asn Glu Gly Glu	
1250 1255 1260 1265	
cgc gtg cgc aca gag ctg gcc gac aag gtc acc aag ctg cag gtg gag	4077
Arg Val Arg Thr Glu Leu Ala Asp Lys Val Thr Lys Leu Gln Val Glu	
1266 1271 1276 1281	
ctg gac aac gtg acc ggg ctt ctc agc cag tcc gac agc aag tcc agc	4125
Leu Asp Asn Val Thr Gly Leu Leu Ser Gln Ser Asp Ser Lys Ser Ser	
1282 1287 1292 1297	
aag ctc acc aag gac ttc tcc gcg ctg gag tcc cag ctg cag gac act	4173
Lys Leu Thr Lys Asp Phe Ser Ala Leu Glu Ser Gln Leu Gln Asp Thr	
1298 1303 1308 1313	
cag gag ctg ctg cag gag gag aac cgg cag aag ctg agc ctg agc acc	4221
Gln Glu Leu Leu Gln Glu Glu Asn Arg Gln Lys Leu Ser Leu Ser Thr	
1314 1319 1324 1329	

aag ctc aag cag gtg gag gac gag aag aat tcc ttc cgg gag cag ctg	4269
Lys Leu Lys Gln Val Glu Asp Glu Lys Asn Ser Phe Arg Glu Gln Leu	
1330 1335 1340 1345	
gag gag gag gag gag gcc aag cac aac ctg gag aag cag atc gcc acc	4317
Glu Glu Glu Glu Glu Ala Lys His Asn Leu Glu Lys Gln Ile Ala Thr	
1346 1351 1356 1361	
ctc cat gcc cag gtg gcc gac atg aaa aag aag atg gag gac agt gtg	4365
Leu His Ala Gln Val Ala Asp Met Lys Lys Lys Met Glu Asp Ser Val	
1362 1367 1372 1377	
ggg tgc ctg gaa act gct gag gag gtg aag agg aag ctc cag aag gac	4413
Gly Cys Leu Glu Thr Ala Glu Glu Val Lys Arg Lys Leu Gln Lys Asp	
1378 1383 1388 1393	
ctg gag ggc ctg agc cag cgg cac gag gag aag gtg gcc gcc tac gac	4461
Leu Glu Gly Leu Ser Gln Arg His Glu Glu Lys Val Ala Ala Tyr Asp	
1394 1399 1404 1409	
aag ctg gag aag acc aag acg cgg ctg cag cag gag ctg gac gac ctg	4509
Lys Leu Glu Lys Thr Lys Thr Arg Leu Gln Gln Glu Leu Asp Asp Leu	
1410 1415 1420 1425	
ctg gtg gac ctg gac cac cag cgc cag agc gcg tgc aac ctg gag aag	4557
Leu Val Asp Leu Asp His Gln Arg Gln Ser Ala Cys Asn Leu Glu Lys	
1426 1431 1436 1441	
aag cag aag aag ttt gac cag ctc ctg gcg gag gag aag acc atc tct	4605
Lys Gln Lys Lys Phe Asp Gln Leu Leu Ala Glu Glu Lys Thr Ile Ser	
1442 1447 1452 1457	
gcc aag tat gca gag gag cgc gac cgg gct gag gcg gag gcc cga gag	4653
Ala Lys Tyr Ala Glu Glu Arg Asp Arg Ala Glu Ala Glu Ala Arg Glu	
1458 1463 1468 1473	
aag gag acc aag gct ctg tgc ctg gcc cgg gcc ctg gag gaa gcc atg	4701
Lys Glu Thr Lys Ala Leu Ser Leu Ala Arg Ala Leu Glu Glu Ala Met	
1474 1479 1484 1489	
gag cag aag gcg gag ctg gag cgg ctc aac aag cag ttc cgc acg gag	4749
Glu Gln Lys Ala Glu Leu Glu Arg Leu Asn Lys Gln Phe Arg Thr Glu	
1490 1495 1500 1505	
atg gag gac ctt atg agc tcc aag gat gat gtg ggc aag agt gtc cac	4797
Met Glu Asp Leu Met Ser Ser Lys Asp Asp Val Gly Lys Ser Val His	
1506 1511 1516 1521	
gag ctg gag aag tcc aag cgg gcc cta gag cag cag gtg gag gag atg	4845
Glu Leu Glu Lys Ser Lys Arg Ala Leu Glu Gln Gln Val Glu Glu Met	
1522 1527 1532 1537	
aag acg cag ctg gaa gag ctg gag gac gag ctg cag gcc acc gaa gat	4893
Lys Thr Gln Leu Glu Glu Leu Glu Asp Glu Leu Gln Ala Thr Glu Asp	
1538 1543 1548 1553	
gcc aag ctg cgg ttg gag gtc aac ctg cag gcc atg aag gcc cag ttc	4941

Ala Lys Leu Arg Leu Glu Val Asn Leu Gln Ala Met Lys Ala Gln Phe	
1554 1559 1564 1569	
gag cgg gac ctg cag ggc cgg gac gag cag agc gag gag aag aag aag	4989
Glu Arg Asp Leu Gln Gly Arg Asp Glu Gln Ser Glu Glu Lys Lys Lys	
1570 1575 1580 1585	
cag ctg gtc aga cag gtg cgg gag atg gag gca gag ctg gag gac gag	5037
Gln Leu Val Arg Gln Val Arg Glu Met Glu Ala Glu Leu Glu Asp Glu	
1586 1591 1596 1601	
agg aag cag cgc tcg atg gca gtg gcc gcc cgg aag aag ctg gag atg	5085
Arg Lys Gln Arg Ser Met Ala Val Ala Ala Arg Lys Lys Leu Glu Met	
1602 1607 1612 1617	
gac ctg aag gac ctg gag gcg cac atc gac tcg gcc aac aag aac cgg	5133
Asp Leu Lys Asp Leu Glu Ala His Ile Asp Ser Ala Asn Lys Asn Arg	
1618 1623 1628 1633	
gac gaa gcc atc aaa cag ctg cgg aag ctg cag gcc cag atg aag gac	5181
Asp Glu Ala Ile Lys Gln Leu Arg Lys Leu Gln Ala Gln Met Lys Asp	
1634 1639 1644 1649	
tgc atg cgc gag ctg gat gac acc cgc gcc tct cgt gag gag atc ctg	5229
Cys Met Arg Glu Leu Asp Thr Arg Ala Ser Arg Glu Glu Ile Leu	
1650 1655 1660 1665	
gcc cag gcc aaa gag aac gag aag aag ctg aag agc atg gag gcc gag	5277
Ala Gln Ala Lys Glu Asn Glu Lys Lys Leu Lys Ser Met Glu Ala Glu	
1666 1671 1676 1681	
atg atc cag ttg cag gag gaa ctg gca gcc gcg gag cgt gcc aag cgc	5325
Met Ile Gln Leu Gln Glu Glu Leu Ala Ala Glu Arg Ala Lys Arg	
1682 1687 1692 1697	
cag gcc cag cag gag cgg gat gag ctg gct gac gag atc gcc aac agc	5373
Gln Ala Gln Gln Glu Arg Asp Glu Leu Ala Asp Glu Ile Ala Asn Ser	
1698 1703 1708 1713	
agc ggc aaa gga gcc ctg gcg tta gag gag aag cgg cgt ctg gag gcc	5421
Ser Gly Lys Gly Ala Leu Ala Leu Glu Glu Lys Arg Arg Leu Glu Ala	
1714 1719 1724 1729	
cgc atc gcc cag ctg gag gag gag ctg gag gag gag cag ggc aac acg	5469
Arg Ile Ala Gln Leu Glu Glu Glu Leu Glu Glu Glu Gln Gly Asn Thr	
1730 1735 1740 1745	
gag ctg atc aac gac cgg ctg aag aag gcc aac ctg cag atc gac cag	5517
Glu Leu Ile Asn Asp Arg Leu Lys Lys Ala Asn Leu Gln Ile Asp Gln	
1746 1751 1756 1761	
atc aac acc gac ctg aac ctg gag cgc agc cac gcc cag aag aac gag	5565
Ile Asn Thr Asp Leu Asn Leu Glu Arg Ser His Ala Gln Lys Asn Glu	
1762 1767 1772 1777	
aat gct cgg cag cag ctg gaa cgc cag aac aag gag ctt aag gtc aag	5613
Asn Ala Arg Gln Gln Leu Glu Arg Gln Asn Lys Glu Leu Lys Val Lys	

1778	1783	1788	1793	
ctg cag gag atg gag ggc act gtc aag tcc aag tac aag gcc tcc atc				5661
Leu Gln Glu Met Glu Gly Thr Val Lys Ser Lys Tyr Lys Ala Ser Ile				
1794	1799	1804	1809	
acc gcc ctc gag gcc aag att gca cag ctg gag gag cag ctg gac aac				5709
Thr Ala Leu Glu Ala Lys Ile Ala Gln Leu Glu Glu Gln Leu Asp Asn				
1810	1815	1820	1825	
gag acc aag gag cgc cag gca gcc tgc aaa cag gtg cgt cgg acc gag				5757
Glu Thr Lys Glu Arg Gln Ala Ala Cys Lys Gln Val Arg Arg Thr Glu				
1826	1831	1836	1841	
aag aag ctg aag gat gtg ctg ctg cag gtg gat gac gag cgg agg aac				5805
Lys Lys Leu Lys Asp Val Leu Leu Gln Val Asp Asp Glu Arg Arg Asn				
1842	1847	1852	1857	
gcc gag cag tac aag gac cag gcc gac aag gca tct acc cgc ctg aag				5853
Ala Glu Gln Tyr Lys Asp Gln Ala Asp Lys Ala Ser Thr Arg Leu Lys				
1858	1863	1868	1873	
cag ctc aag cgg cag ctg gag gag gcc gaa gag gag gcc cag cgg gcc				5901
Gln Leu Lys Arg Gln Leu Glu Glu Ala Glu Glu Glu Ala Gln Arg Ala				
1874	1879	1884	1889	
aac gcc tcc cgc cgg aaa ctg cag cgc gag ctg gag gac gcc act gag				5949
Asn Ala Ser Arg Arg Lys Leu Gln Arg Glu Leu Glu Asp Ala Thr Glu				
1890	1895	1900	1905	
acg gcc gat gcc atg aac cgc gaa gtc agc tcc cta aag aac aag ctc				5997
Thr Ala Asp Ala Met Asn Arg Glu Val Ser Ser Leu Lys Asn Lys Leu				
1906	1911	1916	1921	
agg cgc ggg gac ctg ccg ttt gtc gtg ccc cgc cga atg gcc cgg aaa				6045
Arg Arg Gly Asp Leu Pro Phe Val Val Pro Arg Arg Met Ala Arg Lys				
1922	1927	1932	1937	
ggc gcc ggg gat ggc tcc gac gaa gag gta gat ggc aaa gcg gat ggg				6093
Gly Ala Gly Asp Gly Ser Asp Glu Glu Val Asp Gly Lys Ala Asp Gly				
1938	1943	1948	1953	
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Ala Glu Ala Lys Pro Ala Glu *				
1954	1959			
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1

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Thr Leu Pro Thr Leu Leu Gly Ala Val Val Arg Pro Gly Cys Arg Glu	
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Leu Leu Cys Leu Leu Met Ile Thr Val Thr Val Gly Pro Gly Ala Ser	
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Gly Val Cys Pro Thr Ala Cys Ile Cys Ala Thr Asp Ile Val Ser Cys	
39 44 49 54	
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Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn Leu Phe Arg Leu Ile	
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Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly Leu Leu Asp Ser Glu	
71 76 81 86	
tgg att cca gta tgc ttt gca aag ctg aac acc cta att ctt cgt cat	520
Trp Ile Pro Val Ser Phe Ala Lys Leu Asn Thr Leu Ile Leu Arg His	
87 92 97 102	
aac aac atc acc agc att tcc acg ggc agt ttt tcc aca act cca aat	568
Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe Ser Thr Thr Pro Asn	
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Leu Lys Cys Leu Asp Leu Ser Ser Asn Lys Leu Lys Thr Val Lys Asn	
119 124 129 134	
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Ala Val Phe Gln Glu Leu Lys Val Leu Glu Val Leu Leu Leu Tyr Asn	
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Asp Leu Tyr Val Gly Arg Phe Lys Leu Ala Glu Leu Met Phe Leu Asp	
183 188 193 198	
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Val Ser Tyr Asn Arg Ile Pro Ser Met Pro Met His His Ile Asn Leu	
199 204 209 214	
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Val Pro Gly Lys Gln Leu Arg Gly Ile Tyr Leu His Gly Asn Pro Phe	
215 220 225 230	

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Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu Val Phe Trp Tyr Arg Arg	
231 236 241 246	
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His Phe Ser Ser Val Met Asp Phe Lys Asn Asp Tyr Thr Cys Arg Leu	
247 252 257 262	
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Trp Ser Asp Ser Arg His Ser Arg Gln Val Leu Leu Leu Gln Asp Ser	
263 268 273 278	
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Phe Met Asn Cys Ser Asp Ser Ile Ile Asn Gly Ser Phe Arg Ala Leu	
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Gly Phe Ile His Glu Ala Gln Val Gly Glu Arg Leu Met Val His Cys	
295 300 305 310	
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Asp Ser Lys Thr Gly Asn Ala Asn Thr Asp Phe Ile Trp Val Gly Pro	
311 316 321 326	
gat aac aga ctg cta gag ccg gat aaa gag atg gaa aac ttt tac gtg	1240
Asp Asn Arg Leu Leu Glu Pro Asp Lys Glu Met Glu Asn Phe Tyr Val	
327 332 337 342	
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Phe His Asn Gly Ser Leu Val Ile Glu Ser Pro Arg Phe Glu Asp Ala	
343 348 353 358	
gga gtg tat tct tgt atc gca atg aat aag caa cgc ctg tta aat gaa	1336
Gly Val Tyr Ser Cys Ile Ala Met Asn Lys Gln Arg Leu Leu Asn Glu	
359 364 369 374	
act gtg gac gtc aca ata aat gtg agc aat ttc act gta agc aga tcc	1384
Thr Val Asp Val Thr Ile Asn Val Ser Asn Phe Thr Val Ser Arg Ser	
375 380 385 390	
cat gct cat gag gca ttt aac aca gct ttt acc act ctt gct gct tgc	1432
His Ala His Glu Ala Phe Asn Thr Ala Phe Thr Thr Leu Ala Ala Cys	
391 396 401 406	
gtg gcc agt atc gtt ttg gta ctt ttg tac ctc tat ctg act cca tgc	1480
Val Ala Ser Ile Val Leu Val Leu Leu Tyr Leu Tyr Leu Thr Pro Cys	
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ccc tgc aag tgt aaa acc aag aga cag aaa aat atg cta cac caa agc	1528
Pro Cys Lys Cys Lys Thr Lys Arg Gln Lys Asn Met Leu His Gln Ser	
423 428 433 438	
aat gcc cat tca tcg att ctc agt cct ggc ccc gct agt gat gcc tcc	1576
Asn Ala His Ser Ser Ile Leu Ser Pro Gly Pro Ala Ser Asp Ala Ser	
439 444 449 454	
gct gat gaa cgg aag gca ggt gca ggt aaa aga gtg gtg ttt ttg gaa	1624

Ala Asp Glu Arg Lys	Ala Gly Ala Gly Lys	Arg Val Val Phe Leu Glu	
455	460	465	470
ccc ctg aag gat act	gca gca ggg cag aac	ggg aaa gtc agg ctc	1672
Pro Leu Lys Asp Thr	Ala Ala Gly Gln Asn	Gly Lys Val Arg Leu	Phe
471	476	481	486
ccc agc gag gca gtg	ata gct gag ggc atc	cta aag tcc acg agg	1720
Pro Ser Glu Ala Val	Ile Ala Glu Gly Ile	Leu Lys Ser Thr Arg	Gly
487	492	497	502
aaa tct gac tca gat	tca gtc aat tca gtg	ttt tct gac aca cct	1768
Lys Ser Asp Ser Asp	Ser Val Asn Ser Val	Phe Ser Asp Thr Pro	Phe
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Asp Val Arg Glu Lys	Lys Glu Asn Leu Leu	Asn Ser Glu Arg Ser	
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act agg ctc tta aca	aag acc agt cat tca caa	gga ggg gat caa gct	213
Thr Arg Leu Leu Thr	Lys Thr Ser His Ser	Gln Gly Gly Asp Gln	Ala
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tta agt aag tcc aca	ggg tca cca aca gag	aag ttg att gaa aaa	261
Leu Ser Lys Ser Thr	Gly Ser Pro Thr Glu	Lys Leu Ile Glu Lys	Arg
36	41	46	51
caa gga gct aag act	gtt ttt aac aag ttc	agc aac atg aat tgg	309
Gln Gly Ala Lys Thr	Val Phe Asn Lys Phe	Ser Asn Met Asn Trp	Pro
52	57	62	67
gtg gac att cac cct	tta aac aaa agt tta	gtc aaa gat aat aaa	357
		tg	

Val	Asp	Ile	His	Pro	Leu	Asn	Lys	Ser	Leu	Val	Lys	Asp	Asn	Lys	Trp	
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Lys	Lys	Thr	Glu	Glu	Thr	Gln	Glu	Lys	Arg	Arg	Ser	Phe	Leu	Gln	Glu	
84					89					94					99	
ttt	tgc	aag	aaa	tac	ggg	ggg	gtg	agt	cat	cat	cag	tca	cat	ctt	ttt	453
Phe	Cys	Lys	Lys	Tyr	Gly	Gly	Val	Ser	His	His	Gln	Ser	His	Leu	Phe	
100					105					110					115	
cat	aca	gta	tcc	aga	atc	tat	gta	gaa	gat	aaa	cac	aaa	atc	tta	tat	501
His	Thr	Val	Ser	Arg	Ile	Tyr	Val	Glu	Asp	Lys	His	Lys	Ile	Leu	Tyr	
116					121					126					131	
tgt	gag	gta	cct	aag	gct	ggc	tgt	tcc	aat	tgg	aaa	aga	att	ctg	atg	549
Cys	Glu	Val	Pro	Lys	Ala	Gly	Cys	Ser	Asn	Trp	Lys	Arg	Ile	Leu	Met	
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gta	cta	aat	gga	ttg	gct	tcc	tct	gca	tac	aac	atc	tcc	cac	aat	gct	597
Val	Leu	Asn	Gly	Leu	Ala	Ser	Ser	Ala	Tyr	Asn	Ile	Ser	His	Asn	Ala	
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Val	His	Tyr	Gly	Lys	His	Leu	Lys	Lys	Leu	Asp	Ser	Phe	Asp	Leu	Lys	
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Gly	Ile	Tyr	Thr	Arg	Leu	Asn	Thr	Tyr	Thr	Lys	Ala	Val	Phe	Val	Arg	
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Asp	Pro	Met	Glu	Arg	Leu	Val	Ser	Ala	Phe	Arg	Asp	Lys	Phe	Glu	His	
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ccc	aat	agt	tat	tac	cat	cca	gta	ttc	gga	aag	gca	att	atc	aag	aaa	789
Pro	Asn	Ser	Tyr	Tyr	His	Pro	Val	Phe	Gly	Lys	Ala	Ile	Ile	Lys	Lys	
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Tyr	Arg	Pro	Asn	Ala	Cys	Glu	Glu	Ala	Leu	Ile	Asn	Gly	Ser	Gly	Val	
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Lys	Phe	Lys	Glu	Phe	Ile	His	Tyr	Leu	Leu	Asp	Ser	His	Arg	Pro	Val	
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276					281					286					291	
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Ala	Asn	Tyr	Phe	Leu	Gln	Met	Ile	Gly	Ala	Pro	Lys	Glu	Leu	Lys	Phe	

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Pro Asn Phe Lys Asp	Arg His Ser Ser Asp	Glu Arg Thr Asn Ala	Gln			
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Val Val Arg Gln Tyr	Leu Lys Asp Leu Thr	Arg Thr Glu Arg Gln	Leu			
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atc tat gac ttt tat	tac ttg gac tat tta	atg ttt aat tat aca	act	1173		
Ile Tyr Asp Phe Tyr	Tyr Leu Asp Tyr Leu	Met Phe Asn Tyr Thr	Thr			
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Ala Asp Gly Pro Trp Thr Gln Arg Gly Glu Glu Glu Glu Ala Glu Ala	
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Arg Ala Lys Leu Ala Pro Gly Arg Glu Pro Pro Ser Pro Cys His Ser	
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Glu Asp Ser Leu Gly Leu Gly Ala Ala Pro Leu Gly Ser Glu Pro Pro	
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159 164 169 174	
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Gly Phe Arg Lys Ala Asp Val Ala Arg His Leu Gly Lys Asn Asn Asp	
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Phe Ser Lys Leu Val Ala Gly Glu Tyr Leu Lys Phe Phe Val Phe Thr	
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287 292 297 302	

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319 324 329 334	
gag gag gag ctg aga cgc tct ctg tct gag ttg gcc gac ccc aac ccc	2856
Glu Glu Glu Leu Arg Arg Ser Leu Ser Glu Leu Ala Asp Pro Asn Pro	
335 340 345 350	
aag gtc atc aag cgg atc agc ggg ggc agt ggc agt ggc tcc agc cct	2904
Lys Val Ile Lys Arg Ile Ser Gly Gly Ser Gly Ser Gly Ser Ser Pro	
351 356 361 366	
ttc ctg gac ctg act ccc gag cct ggg gct gcc gtc tac aag cac ggg	2952
Phe Leu Asp Leu Thr Pro Glu Pro Gly Ala Ala Val Tyr Lys His Gly	
367 372 377 382	
gcc ctg gtg cga aag gtg cac gca gac cct gac tgc agg aag aca cct	3000
Ala Leu Val Arg Lys Val His Ala Asp Pro Asp Cys Arg Lys Thr Pro	
383 388 393 398	
cgg ggc aag cgg ggc tgg aag agc ttc cac ggg atc ctc aag ggc atg	3048
Arg Gly Lys Arg Gly Trp Lys Ser Phe His Gly Ile Leu Lys Gly Met	
399 404 409 414	
atc ctc tac ctg cag aag gag gag tac aag cct ggg aag gcc ctt tca	3096
Ile Leu Tyr Leu Gln Lys Glu Glu Tyr Lys Pro Gly Lys Ala Leu Ser	
415 420 425 430	
gag acg gag ctc aag aat gcc atc agc atc cac cat gcc ctg gcc act	3144
Glu Thr Glu Leu Lys Asn Ala Ile Ser Ile His His Ala Leu Ala Thr	
431 436 441 446	
cgt gcc agt gac tac agc aag agg ccc cac gtc ttc tac ctg cgc aca	3192
Arg Ala Ser Asp Tyr Ser Lys Arg Pro His Val Phe Tyr Leu Arg Thr	
447 452 457 462	
gct gac tgg cgg gtc ttc ctc ttc cag gcc ccg agc ctg gag cag atg	3240
Ala Asp Trp Arg Val Phe Leu Phe Gln Ala Pro Ser Leu Glu Gln Met	
463 468 473 478	
cag tcc tgg atc act cgc atc aat gta gta gcc gct atg ttc tct gcg	3288
Gln Ser Trp Ile Thr Arg Ile Asn Val Val Ala Ala Met Phe Ser Ala	
479 484 489 494	
ccc ccc ttc cca gct gct gtt agc tcc caa aag aag ttc agc cgc cct	3336
Pro Pro Phe Pro Ala Ala Val Ser Ser Gln Lys Lys Phe Ser Arg Pro	
495 500 505 510	
ctc ctg ccc agc gct gcc acc cgc ctc tcc cag gag gag cag gtg cgg	3384
Leu Leu Pro Ser Ala Ala Thr Arg Leu Ser Gln Glu Glu Gln Val Arg	
511 516 521 526	
acc cac gag gcc aag ctg aag gcc atg gca agt gag ctg cgg gag cac	3432

Thr	His	Glu	Ala	Lys	Leu	Lys	Ala	Met	Ala	Ser	Glu	Leu	Arg	Glu	His	
527					532					537					542	
cgg	gcc	gcc	cag	ctg	ggc	aag	aag	ggc	cgg	ggc	aag	aag	gct	gaa	gag	3480
Arg	Ala	Ala	Gln	Leu	Gly	Lys	Lys	Gly	Arg	Gly	Lys	Lys	Ala	Glu	Glu	
543					548					553					558	
cag	cgg	cag	aag	gag	gcc	tac	ctg	gag	ttt	gag	aaa	tcc	cgc	tac	agc	3528
Gln	Arg	Gln	Lys	Glu	Ala	Tyr	Leu	Glu	Phe	Glu	Lys	Ser	Arg	Tyr	Ser	
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acc	tat	gca	gcg	ctg	ctt	cgg	gtc	aag	ctg	aag	gca	ggc	agt	gag	gag	3576
Thr	Tyr	Ala	Ala	Leu	Leu	Arg	Val	Lys	Leu	Lys	Ala	Gly	Ser	Glu	Glu	
575					580					585					590	
ctg	gat	gca	gtg	gag	gca	gca	ctg	gcc	cag	gcc	ggg	agc	aca	gag	gat	3624
Leu	Asp	Ala	Val	Glu	Ala	Ala	Leu	Ala	Gln	Ala	Gly	Ser	Thr	Glu	Asp	
591					596					601					606	
gga	ctc	cct	cct	tct	cac	tcc	agt	ccc	tcc	ctg	cag	ccc	aaa	ccc	tcc	3672
Gly	Leu	Pro	Pro	Ser	His	Ser	Ser	Pro	Ser	Leu	Gln	Pro	Lys	Pro	Ser	
607					612					617					622	
agc	cag	ccc	cgg	gct	cag	cgt	cac	agc	tca	gag	cct	cgg	cca	ggg	gca	3720
Ser	Gln	Pro	Arg	Ala	Gln	Arg	His	Ser	Ser	Glu	Pro	Arg	Pro	Gly	Ala	
623					628					633					638	
ggc	agt	ggg	cgg	cgg	aag	ccc	tga	gatgaggttt								3754
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gtcccgggggc	ccgggggtccc	gtctggcggc	ccgggattac	cgtgacgtca	cattgagcct	180
ctggccacct	tggactggga	cacctccgga	gcctcacagc	cccgcgccgc	gccgcgcctc	240
acctcgccac	cacgcgcctt	tgggaacccg	catcttcttc	cttcccctgc	ccatccatgg	300
gcccttctgt	cttccggacc	ccacggggccg	gaggggcgcc	ttccggagcg	cagggctcgg	360

cagccggggt gccctcgggt ctgcctccac tggggccaac caggcgaagg aaccggcgct 420
 gggcatccgc agcgggtgtaa ggaactgaga cacctcactg ctggggggcgc ggaacagctg 480
 ggctgagacg ggaactcgac aggggaagaga gagacgggcc agggacagcc acc atg 536
 Met
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 tcc ttc cca cac ttt gga cac ccg tac cgc ggc gct tcc cag ttt ctg 584
 Ser Phe Pro His Phe Gly His Pro Tyr Arg Gly Ala Ser Gln Phe Leu
 2 7 12 17
 gcg tcg gca agt tcc agc acc aca tgc tgc gaa tct acc caa cgc tct 632
 Ala Ser Ala Ser Ser Ser Thr Thr Cys Cys Glu Ser Thr Gln Arg Ser
 18 23 28 33
 gtc tca gat gtg gca tca ggc tcc acc cca gcg ccc gct ctc tgc tgc 680
 Val Ser Asp Val Ala Ser Gly Ser Thr Pro Ala Pro Ala Leu Cys Cys
 34 39 44 49
 gca ccc tac gat agt cga ctg ctg ggc agt gcg cga ccg gag ctg ggc 728
 Ala Pro Tyr Asp Ser Arg Leu Leu Gly Ser Ala Arg Pro Glu Leu Gly
 50 55 60 65
 gcc gcc ttg ggc atc tat gga gca ccc tat gcg gcc gct gca gct gcc 776
 Ala Ala Leu Gly Ile Tyr Gly Ala Pro Tyr Ala Ala Ala Ala Ala Ala
 66 71 76 81
 cag agc tac cct ggc tac ctg ccc tat agc cca gag ccc ccc tca ctg 824
 Gln Ser Tyr Pro Gly Tyr Leu Pro Tyr Ser Pro Glu Pro Pro Ser Leu
 82 87 92 97
 tat ggg gca ctg aat cca cag tat gaa ttt aag gag gct gca ggg agt 872
 Tyr Gly Ala Leu Asn Pro Gln Tyr Glu Phe Lys Glu Ala Ala Gly Ser
 98 103 108 113
 ttt aca tcc agc ctg gca caa cca gga gcc tat tat ccc tat gag cgg 920
 Phe Thr Ser Ser Leu Ala Gln Pro Gly Ala Tyr Tyr Pro Tyr Glu Arg
 114 119 124 129
 act ctg ggg cag tac caa tat gaa cgg tat ggc gca gtg gaa ttg agt 968
 Thr Leu Gly Gln Tyr Gln Tyr Glu Arg Tyr Gly Ala Val Glu Leu Ser
 130 135 140 145
 ggc gcc ggt cgc cga aag aac gcg acc cgg gag acc acc agt aca ctc 1016
 Gly Ala Gly Arg Arg Lys Asn Ala Thr Arg Glu Thr Thr Ser Thr Leu
 146 151 156 161
 aag gcc tgg ctc aac gag cac cgc aaa aac ccc tac ccc act aag ggt 1064
 Lys Ala Trp Leu Asn Glu His Arg Lys Asn Pro Tyr Pro Thr Lys Gly
 162 167 172 177
 gag aag atc atg ctg gcc atc atc acc aag atg acc ctc acc cag gtg 1112
 Glu Lys Ile Met Leu Ala Ile Ile Thr Lys Met Thr Leu Thr Gln Val
 178 183 188 193
 tcc acc tgg ttc gcc aac gca cgc cgg cgc ctc aag aaa gag aac aaa 1160

Ser	Thr	Trp	Phe	Ala	Asn	Ala	Arg	Arg	Arg	Leu	Lys	Lys	Glu	Asn	Lys		
194					199					204					209		
atg	aca	tgg	gcg	ccc	aag	aac	aaa	ggt	ggg	gag	gag	agg	aag	gca	gag	1208	
Met	Thr	Trp	Ala	Pro	Lys	Asn	Lys	Gly	Gly	Glu	Glu	Arg	Lys	Ala	Glu		
210					215					220					225		
gga	gga	gag	gag	gac	tca	cta	ggc	tgc	cta	act	gct	gac	acc	aaa	gaa	1256	
Gly	Gly	Glu	Glu	Asp	Ser	Leu	Gly	Cys	Leu	Thr	Ala	Asp	Thr	Lys	Glu		
226					231					236					241		
gtt	act	gct	agc	cag	gag	gcc	cgg	ggg	ctc	cgg	ctg	agt	gac	ctg	gaa	1304	
Val	Thr	Ala	Ser	Gln	Glu	Ala	Arg	Gly	Leu	Arg	Leu	Ser	Asp	Leu	Glu		
242					247					252					257		
gac	ctg	gag	gaa	gag	gag	gag	gag	gag	gag	gaa	gct	gaa	gac	gag	gag	1352	
Asp	Leu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Glu	Ala	Glu	Asp	Glu	Glu		
258					263					268					273		
gta	gtg	gcc	aca	gct	ggg	gac	agg	ctg	acg	gag	ttc	cga	aag	ggc	gcg	1400	
Val	Val	Ala	Thr	Ala	Gly	Asp	Arg	Leu	Thr	Glu	Phe	Arg	Lys	Gly	Ala		
274					279					284					289		
cag	tca	ctg	cct	ggg	ccg	tgc	gct	gca	gct	cga	gag	ggc	cga	ttg	gag	1448	
Gln	Ser	Leu	Pro	Gly	Pro	Cys	Ala	Ala	Ala	Arg	Glu	Gly	Arg	Leu	Glu		
290					295					300					305		
cgc	agg	gag	tgc	ggc	ctg	gct	gcg	ccc	cgc	ttc	tcc	ttc	aat	gac	cct	1496	
Arg	Arg	Glu	Cys	Gly	Leu	Ala	Ala	Pro	Arg	Phe	Ser	Phe	Asn	Asp	Pro		
306					311					316					321		
tcc	gga	tcg	gaa	gaa	gct	gac	ttc	ctc	tcg	gcg	gag	aca	ggc	agc	cct	1544	
Ser	Gly	Ser	Glu	Glu	Ala	Asp	Phe	Leu	Ser	Ala	Glu	Thr	Gly	Ser	Pro		
322					327					332					337		
agg	ttg	acc	atg	cac	tac	cca	tgc	ttg	gag	aaa	ccg	cgc	atc	tgg	tct	1592	
Arg	Leu	Thr	Met	His	Tyr	Pro	Cys	Leu	Glu	Lys	Pro	Arg	Ile	Trp	Ser		
338					343					348					353		
ctg	gcg	cac	acc	gcg	aca	gcc	agc	gct	gtt	gaa	ggg	gca	ccc	cca	gcc	1640	
Leu	Ala	His	Thr	Ala	Thr	Ala	Ser	Ala	Val	Glu	Gly	Ala	Pro	Pro	Ala		
354					359					364					369		
cgg	cct	agg	cca	cga	agt	cct	gag	tgc	cgt	atg	att	cct	gga	cag	cct	1688	
Arg	Pro	Arg	Pro	Arg	Ser	Pro	Glu	Cys	Arg	Met	Ile	Pro	Gly	Gln	Pro		
370					375					380					385		
cct	gcc	tct	gcc	cgg	cga	ctc	tca	gtc	ccc	aga	gac	tcc	gcg	tgc	gac	1736	
Pro	Ala	Ser	Ala	Arg	Arg	Leu	Ser	Val	Pro	Arg	Asp	Ser	Ala	Cys	Asp		
386					391					396					401		
gag	tct	tcc	tgc	ata	ccc	aaa	gcc	ttt	gga	aac	ccc	aag	ttt	gcc	ctg	1784	
Glu	Ser	Ser	Cys	Ile	Pro	Lys	Ala	Phe	Gly	Asn	Pro	Lys	Phe	Ala	Leu		
402					407					412					417		
cag	gga	cta	ccg	ctg	aac	tgt	gcg	ccg	tgc	ccg	cgg	agg	agc	gag	cct	1832	
Gln	Gly	Leu	Pro	Leu	Asn	Cys	Ala	Pro	Cys	Pro	Arg	Arg	Ser	Glu	Pro		

418	423	428	433	
gta gtg cag tgc cag	tac ccg tct gga gca	gaa ggt agt ggg ccc cca	1880	
Val Val Gln Cys Gln	Tyr Pro Ser Gly Ala	Glu Gly Ser Gly Pro Pro		
434	439	444	449	
gcg gcg ctg gga gta	tct atg caa aag aca	ccc acc tac cgc ccc gcc	1928	
Ala Ala Leu Gly Val	Ser Met Gln Lys Thr	Pro Thr Tyr Arg Pro Ala		
450	455	460	465	
cgg caa ttg cac acc	ctc tgc cat tcc agt	ctg ccc aga gga gac tcg	1976	
Arg Gln Leu His Thr	Leu Cys His Ser Ser	Leu Pro Arg Gly Asp Ser		
466	471	476	481	
ctg gtc cct gct gtg	ctg ctc aga gag ttt	act agg gtt ggg cag gca	2024	
Leu Val Pro Ala Val	Leu Leu Arg Glu Phe	Thr Arg Val Gly Gln Ala		
482	487	492	497	
cca ggg ctt tta gag	aag tct aag act gtg	ggc cag acg cac acc aca	2072	
Pro Gly Leu Leu Glu	Lys Ser Lys Thr Val	Gly Gln Thr His Thr Thr		
498	503	508	513	
gat tta agg gga ccc	tcc agt cgc cct cgc	tga cccgcggc ttagggctcg	2123	
Asp Leu Arg Gly Pro	Ser Ser Arg Pro Arg *			
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gcggtaggga agtgaagcgc ctctctccac	cttggttagaa gcgcgctgaa agcggcctgc	180
ctaccacccc catcgctgcc gttttgcagt	cgtcgctccc accttccgct gccgcctgga	240
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gagacgtggt gggcggtcct tcctgtgaca	cgacccttga gtgacagttc tatttgattg	420
cctccggtac tgtgaggaaa ggacacgact	ct atg gtg agg act gat gga cat	473
	Met Val Arg Thr Asp Gly His	

1

5

aca tta tct gag aaa aga aac tac cag gtg	aca aac agc atg ttt ggt	521
Thr Leu Ser Glu Lys Arg Asn Tyr Gln Val	Thr Asn Ser Met Phe Gly	
8 13 18 23		
gct tca aga aag aag ttt gta gag ggg gtc	gac agt gac tac cat gac	569
Ala Ser Arg Lys Lys Phe Val Glu Gly Val	Asp Ser Asp Tyr His Asp	
24 29 34 39		
gaa aac atg tac tac agc cag tct tct atg	ttt cca cat cgg tca gaa	617
Glu Asn Met Tyr Tyr Ser Gln Ser Ser Met	Phe Pro His Arg Ser Glu	
40 45 50 55		
aaa gat atg ctg gca tca cca tct aca tca	ggc cag ctg tct cag ttt	665
Lys Asp Met Leu Ala Ser Pro Ser Thr Ser	Gly Gln Leu Ser Gln Phe	
56 61 66 71		
ggg gca agt tta tac ggg caa caa agt gca	cta ggc ctt cca atg agg	713
Gly Ala Ser Leu Tyr Gly Gln Gln Ser Ala	Leu Gly Leu Pro Met Arg	
72 77 82 87		
ggg atg agc aac aat acc cct cag tta aat	cgc agc tta tca caa ggc	761
Gly Met Ser Asn Asn Thr Pro Gln Leu Asn	Arg Ser Leu Ser Gln Gly	
88 93 98 103		
act cag tta ccg agc cac gtc acg cca aca	aca ggg gta cca aca atg	809
Thr Gln Leu Pro Ser His Val Thr Pro Thr	Thr Gly Val Pro Thr Met	
104 109 114 119		
tca ctt cac acg cct cca tct cca agc agg	ggc att ttg cct atg aat	857
Ser Leu His Thr Pro Pro Ser Pro Ser Arg	Gly Ile Leu Pro Met Asn	
120 125 130 135		
cct agg aat atg atg aac cac tcc cag gtt	ggc cag ggc att gga att	905
Pro Arg Asn Met Met Asn His Ser Gln Val	Gly Gln Gly Ile Gly Ile	
136 141 146 151		
cct agc agg aca aat agc atg agc agt tca	ggg tta ggt agc ccc aac	953
Pro Ser Arg Thr Asn Ser Met Ser Ser Ser	Gly Leu Gly Ser Pro Asn	
152 157 162 167		
aga agc tcg cca agc ata ata tgt atg cca	aag cag cag cct tct cga	1001
Arg Ser Ser Pro Ser Ile Ile Cys Met Pro	Lys Gln Gln Pro Ser Arg	
168 173 178 183		
cag cct ttt act gtg aac agt atg tct gga	ttt gga atg aac agg aat	1049
Gln Pro Phe Thr Val Asn Ser Met Ser Gly	Phe Gly Met Asn Arg Asn	
184 189 194 199		
cag gca ttt gga atg aat aac tcc tta tca	agt aac att ttt aat gga	1097
Gln Ala Phe Gly Met Asn Asn Ser Leu Ser	Ser Asn Ile Phe Asn Gly	
200 205 210 215		
aca gac gga agt gaa aat gtg aca gga ttg	gac ctt tca gat ttc cca	1145
Thr Asp Gly Ser Glu Asn Val Thr Gly Leu	Asp Leu Ser Asp Phe Pro	
216 221 226 231		

gca tta gca gac cga aac agg agg gaa gga agt ggt aac cca act cca	1193
Ala Leu Ala Asp Arg Asn Arg Arg Glu Gly Ser Gly Asn Pro Thr Pro	
232 237 242 247	
tta ata aac ccc ttg gct gga aga gct cct tat gtt gga atg gta aca	1241
Leu Ile Asn Pro Leu Ala Gly Arg Ala Pro Tyr Val Gly Met Val Thr	
248 253 258 263	
aaa cca gca aat gaa caa tcc cag gac ttc tca ata cac aat gaa gat	1289
Lys Pro Ala Asn Glu Gln Ser Gln Asp Phe Ser Ile His Asn Glu Asp	
264 269 274 279	
ttt cca gca tta cca ggc tcc agc tat aaa gat cca aca tca agt aat	1337
Phe Pro Ala Leu Pro Gly Ser Ser Tyr Lys Asp Pro Thr Ser Ser Asn	
280 285 290 295	
gat gac agt aaa tct aat ttg aat aca tct ggc aag aca act tca agt	1385
Asp Asp Ser Lys Ser Asn Leu Asn Thr Ser Gly Lys Thr Thr Ser Ser	
296 301 306 311	
aca gat gga ccc aaa ttc cct gga gat aaa agt tca aca aca caa aat	1433
Thr Asp Gly Pro Lys Phe Pro Gly Asp Lys Ser Ser Thr Thr Gln Asn	
312 317 322 327	
aat aac cag cag aaa aaa ggg atc cag gtg tta cct gat ggt cgg gtt	1481
Asn Asn Gln Gln Lys Lys Gly Ile Gln Val Leu Pro Asp Gly Arg Val	
328 333 338 343	
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Thr Asn Ile Pro Gln Gly Met Val Thr Asp Gln Phe Gly Met Ile Gly	
344 349 354 359	
ctg tta aca ttt atc agg gca gca gag aca gac cca gga atg gta cat	1577
Leu Leu Thr Phe Ile Arg Ala Ala Glu Thr Asp Pro Gly Met Val His	
360 365 370 375	
ctt gca tta gga agt gac tta aca aca tta ggc ctc aat ctg aac tct	1625
Leu Ala Leu Gly Ser Asp Leu Thr Thr Leu Gly Leu Asn Leu Asn Ser	
376 381 386 391	
cct gaa aat ctc tac ccc aaa ttt gcg tca ccc tgg gca tct tca cct	1673
Pro Glu Asn Leu Tyr Pro Lys Phe Ala Ser Pro Trp Ala Ser Ser Pro	
392 397 402 407	
tgt cga cct caa gac ata gac ttc cat gtt cca tct gag tac tta acg	1721
Cys Arg Pro Gln Asp Ile Asp Phe His Val Pro Ser Glu Tyr Leu Thr	
408 413 418 423	
aac att cac att agg gat aag tta ttt ttc ttt ttc agc tgg ctg caa	1769
Asn Ile His Ile Arg Asp Lys Leu Phe Phe Phe Phe Ser Trp Leu Gln	
424 429 434 439	
taa aact tggccgatat ggtgaagacc ttctcttcta tctctattac atgaatggag	1826
*	
440	

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aagaagaacg agtatggatt accagggcac caggcatgga gccacaatg aaaaccaata 1946
cctatgagag gggaacatat tacttctttg actgtotaa ctggaggaaa gtagctaagg 2006
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Met Ala Thr Ser Gln Tyr Phe Asp Phe Ala Gln Gly Gly Gly Pro
1 5 10
cag tac agc acc cag gct ccg acc ctt ccc ctg ccc act gtg ggg gcc 157
Gln Tyr Ser Thr Gln Ala Pro Thr Leu Pro Leu Pro Thr Val Gly Ala
16 21 26 31
agc tat act gga caa ccc act cct ggg atg gac cct gcc gtg aac ccg 205
Ser Tyr Thr Gly Gln Pro Thr Pro Gly Met Asp Pro Ala Val Asn Pro
32 37 42 47
gcc ttt ccc cca gct gcc ccg gca ggg tac ggt gga tac cag ccc cac 253
Ala Phe Pro Pro Ala Ala Pro Ala Gly Tyr Gly Gly Tyr Gln Pro His
48 53 58 63
tcc ggc cag gac ttc gcc tac ggc agc cga ccc cag gag ccc gtc ccc 301
Ser Gly Gln Asp Phe Ala Tyr Gly Ser Arg Pro Gln Glu Pro Val Pro
64 69 74 79
acg gcc acc acc atg gct acc tac cag gac agt tac agc tac gga cag 349
Thr Ala Thr Thr Met Ala Thr Tyr Gln Asp Ser Tyr Ser Tyr Gly Gln
80 85 90 95
tca gca gct gcc agg agc tat gag gac agg ccg tac ttc cag tct gct 397
Ser Ala Ala Ala Arg Ser Tyr Glu Asp Arg Pro Tyr Phe Gln Ser Ala
96 101 106 111
gcc ctc cag tct ggg cgc atg aca gcc gca gac tcc ggc cag cca ggg 445
Ala Leu Gln Ser Gly Arg Met Thr Ala Ala Asp Ser Gly Gln Pro Gly
112 117 122 127

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Thr	Gln	Glu	Ala	Cys	Gly	Gln	Pro	Ser	Pro	His	Gly	Ser	His	Ser	His	
128					133					138					143	
gct	cag	ccc	cca	cag	cag	gcg	ccc	ata	gtg	gag	tcc	gga	cag	cca	gcg	541
Ala	Gln	Pro	Pro	Gln	Gln	Ala	Pro	Ile	Val	Glu	Ser	Gly	Gln	Pro	Ala	
144					149					154					159	
agc	acc	ttg	tcc	tcg	gga	tac	acc	tac	ccc	acg	gcg	aca	ggc	gtc	cag	589
Ser	Thr	Leu	Ser	Ser	Gly	Tyr	Thr	Tyr	Pro	Thr	Ala	Thr	Gly	Val	Gln	
160					165					170					175	
ccc	gag	tcg	tca	gct	tcc	atc	gtg	acc	tcc	tac	ccc	cgc	ccc	tcc	tac	637
Pro	Glu	Ser	Ser	Ala	Ser	Ile	Val	Thr	Ser	Tyr	Pro	Pro	Pro	Ser	Tyr	
176					181					186					191	
aac	ccc	acc	tgc	acc	gcc	tac	acg	gca	cca	agc	tac	cgc	aac	tat	gac	685
Asn	Pro	Thr	Cys	Thr	Ala	Tyr	Thr	Ala	Pro	Ser	Tyr	Pro	Asn	Tyr	Asp	
192					197					202					207	
gcg	tcg	gtg	tac	tcc	gct	gcc	agc	cct	ttc	tat	cct	cca	gcg	cag	ccc	733
Ala	Ser	Val	Tyr	Ser	Ala	Ala	Ser	Pro	Phe	Tyr	Pro	Pro	Ala	Gln	Pro	
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Thr	Gly	Val	Gln	Pro	Asn	Gly	Ser	Pro	Arg	Gly	Val	Gln	Ala	Gln	Leu	
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Ser	Pro	Pro	Gly	Ala	Glu	Ala	Lys	Pro	Thr	Ser	Pro	Thr	Gly	Pro	Ser	
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Arg	Arg	Leu	Glu	Glu	Glu	Pro	Pro	Gln	Asp	Val	Pro	Pro	His	Ala	Pro	
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Pro	Asp	Trp	Ala	Gln	Pro	Leu	Leu	Met	Gly	Arg	Pro	Glu	Ser	Pro	Ala	
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Val Ser Asp Thr Leu	Ala Glu Glu Asp Arg	Gly Arg Arg Glu Glu	Glu				
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Ser Pro Leu Met Arg	Glu Asp Pro Ser Thr	Asp Pro Gly Val Glu	Glu				
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Gly Thr Gly Tyr Thr Lys Leu Gly Tyr Ala Gly Asn Thr Glu Pro Gln		
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Phe Ile Ile Pro Ser Cys Ile Ala Ile Arg Glu Ser Ala Lys Val Val		
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Phe Ile Gly Asp Glu Ala Ile Asp Lys Pro Thr Tyr Ala Thr Lys Trp		
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Tyr Phe Leu Met Thr Glu Pro Pro Leu Asn Thr Pro Glu Asn Arg Glu		
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Tyr Leu Ala Glu Ile Met Phe Glu Ser Phe Asn Val Pro Gly Leu Tyr		
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Ile Ala Val Gln Ala Val Leu Ala Leu Ala Ala Ser Trp Thr Ser Arg		
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Gln Val Gly Glu Arg Thr Leu Thr Gly Ile Val Ile Asp Ser Gly Asp		
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Gly Val Thr His Val Ile Pro Val Ala Glu Gly Tyr Val Ile Gly Ser		
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Cys Ile Lys His Ile Pro Ile Ala Gly Arg Asp Ile Thr Tyr Phe Ile		
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Ile Lys Gln Tyr Thr Gly Ile Asn Ala Ile Asn Gln Lys Lys Phe Val		
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 Glu Glu Ser Pro Ala Pro Ser Arg Ala Pro Ala Ser Ala Ser Leu Trp
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 Ser Trp Tyr Leu Ala Leu Leu Gly Phe Ala Glu His Phe Arg Thr Ser
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 Ser Pro Pro Lys Ile Arg Leu Cys Val His Cys Leu Gln Ala Val Phe
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Pro Phe Lys Pro Pro Gln Arg Ile Glu Ala Arg Thr His Leu Gln Leu	
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Val Pro Thr Leu Glu Arg Leu Arg Ala Ala Gln Lys Arg Arg Ala Gln
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Gln Leu Lys Lys Trp Ala Gln Tyr Glu Gln Asp Leu Gln His Arg Lys
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Arg Lys His Glu Arg Lys Arg Ser Thr Gly Gly Arg Arg Lys Lys Val
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Ser Phe Glu Ala Ser Val Ala Leu Leu Glu Ala Ser Leu Arg Asn Asp
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Cys Asn Glu Asp Gly Leu Thr Ala Leu His Gln Cys Cys Ile Asp Asn
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Phe Glu Glu Ile Val Lys Leu Leu Leu Ser His Gly Ala Asn Val Asn
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Gly His Ile Asn Leu Val Lys Ile Leu Val Gln Tyr Gly Ala Asp Leu	
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Met Ala Asp Thr Thr Pro Asn Gly Pro Gln Gly Ala Gly Ala
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Gly	Leu	His	Glu	Ala	Ala	Ser	Phe	Tyr	Gln	Arg	Ala	Leu	Leu	Ala	Asn	
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Ala	Leu	Thr	Ser	Ala	Leu	Arg	Leu	His	Gln	Arg	Leu	Pro	His	Phe	Gln	
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Tyr	Leu	Leu	Tyr	Ser	Leu	Ile	Phe	Val	Asn	Ser	Tyr	Pro	Val	Thr	Met	
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His Thr Leu Leu Cys Pro Asp Phe Ala Arg Arg Gly Ala Cys Pro Arg				
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Arg Ala Ala Thr Ser Pro Ala Pro Gly Pro Ser Asp Ala Thr Ala Arg				
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Val Ala Ala Pro Pro His Cys Pro Gly Gly Ser Ala Ser Pro Ser Ser				
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Cys Ser Asn Arg Leu Cys Lys Leu Pro Ser Phe Ile Ser Leu Gln Ser				
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Ala Leu Glu Val Tyr Phe Pro Ala Gln Tyr Val Asp Gln Thr Asp Leu
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Glu Lys Tyr Asn Asn Val Glu Ala Gly Lys Tyr Thr Val Gly Leu Gly
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Phe Ser Tyr Gly Ser Gly Leu Ala Ala Ser Phe Phe Ser Phe Arg Val				
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Thr	Thr	Glu	Pro	Asn	Gly	Leu	Ile	Leu	Phe	Ser	His	Gly	Lys	Pro	Arg	
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cat	cag	aaa	gat	gcc	aag	cac	cca	cag	atg	ata	aag	gtg	gac	ttc	ttt	1383
His	Gln	Lys	Asp	Ala	Lys	His	Pro	Gln	Met	Ile	Lys	Val	Asp	Phe	Phe	
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gct	att	gag	atg	cta	gat	ggc	cac	ctc	tac	ctc	ctc	ctg	gac	atg	ggg	1431
Ala	Ile	Glu	Met	Leu	Asp	Gly	His	Leu	Tyr	Leu	Leu	Leu	Asp	Met	Gly	
392					397					402					407	
tca	ggt	act	ata	aaa	ata	aaa	gcc	ctg	ttg	aag	aaa	gtg	aat	gat	gga	1479
Ser	Gly	Thr	Ile	Lys	Ile	Lys	Ala	Leu	Leu	Lys	Lys	Val	Asn	Asp	Gly	
408					413					418					423	
gaa	tgg	tat	cat	gtg	gac	ttc	cag	aga	gac	gga	cgg	tca	ggt	acc	att	1527
Glu	Trp	Tyr	His	Val	Asp	Phe	Gln	Arg	Asp	Gly	Arg	Ser	Gly	Thr	Ile	
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Ser	Val	Asn	Thr	Leu	Arg	Thr	Pro	Tyr	Thr	Ala	Pro	Gly	Glu	Ser	Glu	
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Ile	Leu	Asp	Leu	Asp	Asp	Glu	Leu	Tyr	Leu	Gly	Gly	Leu	Pro	Glu	Asn	
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Lys	Ala	Gly	Leu	Val	Phe	Pro	Thr	Glu	Val	Trp	Thr	Ala	Leu	Leu	Asn	
472					477					482					487	
tat	ggc	tac	gtg	ggc	tgc	atc	agg	gat	ttg	ttc	atc	gat	ggc	caa	agc	1719
Tyr	Gly	Tyr	Val	Gly	Cys	Ile	Arg	Asp	Leu	Phe	Ile	Asp	Gly	Gln	Ser	
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Lys Asn Asn Gly Met Cys Arg Asp Gly Trp Asn Arg Tyr Val Cys Asp				
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Cys Ser Gly Thr Gly Tyr Leu Gly Arg Ser Cys Glu Arg Glu Ala Thr				
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Val Leu Ser Tyr Asp Gly Ser Met Phe Met Lys Ile Gln Leu Pro Val				
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Val Met His Thr Glu Ala Glu Asp Val Ser Leu Arg Phe Arg Ser Gln				
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Arg Ala Tyr Gly Ile Leu Met Ala Thr Thr Ser Arg Asp Ser Ala Asp				
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Thr Leu Arg Leu Glu Leu Asp Ala Gly Arg Val Lys Leu Thr Val Asn				
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Val Val Arg Arg Gly Lys Ser Leu Lys Leu Thr Val His Asp Gln Gln				
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Asn Ile Glu Thr Gly Ile Ile Thr Glu Arg Arg Tyr Leu Ser Ser Val				
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Pro Ser Asn Phe Ile Gly His Leu Gln Ser Leu Thr Phe Asn Gly Met				
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Ala Tyr Ile Asp Leu Cys Lys Asn Gly Asp Ile Asp Tyr Cys Glu Leu				
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Asn Ala Arg Phe Gly Phe Arg Asn Ile Ile Ala Asp Pro Val Thr Phe	
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Lys Thr Lys Ser Ser Tyr Val Ala Leu Ala Thr Leu Gln Ala Tyr Thr	
760 765 770 775	
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Ser Met His Leu Phe Phe Gln Phe Lys Thr Thr Ser Leu Asp Gly Leu	
776 781 786 791	
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Ile Leu Tyr Asn Ser Gly Asp Gly Asn Asp Phe Ile Val Val Glu Leu	
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Val Lys Gly Tyr Leu His Tyr Val Phe Asp Leu Gly Asn Gly Ala Asn	
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Leu Ile Lys Gly Ser Ser Asn Lys Pro Leu Asn Asp Asn Gln Trp His	
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Asn Val Met Ile Ser Arg Asp Thr Ser Asn Leu His Thr Val Lys Ile	
840 845 850 855	
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Asp Thr Lys Ile Thr Thr Gln Ile Thr Ala Gly Ala Arg Asn Leu Asp	
856 861 866 871	
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Leu Lys Ser Asp Leu Tyr Ile Gly Gly Val Ala Lys Glu Thr Tyr Lys	
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Ser Leu Pro Lys Leu Val His Ala Lys Glu Gly Phe Gln Gly Cys Leu	
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Ala Ser Val Asp Leu Asn Gly Arg Leu Pro Asp Leu Ile Ser Asp Ala	
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Gln Ile Thr Tyr Lys Trp Pro Pro Asn Asp Arg Pro Ser Thr Arg Ala	
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Phe Asn Ser Gln Ala Thr Ile Ile Ile Gly Gly Lys Glu Gln Gly Gln	
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Ser	Ala	Glu	Val	Ile	Arg	Glu	Ser	Ser	Ser	Thr	Thr	Gly	Met	Val	Val		
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 Met Pro Lys Arg Lys Pro Ser Glu Gly Ala Met Ser Asp Lys Val Lys
 1 5 10 15
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 Ala Ser Leu Ser Tyr Arg Gly Asp Gln Gln Asp Tyr Phe Leu Asn Leu
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 ccc ctc caa aac cag aga cca ggc cta aga agg acc ctg caa atc aga 202
 Pro Leu Gln Asn Gln Arg Pro Gly Leu Arg Arg Thr Leu Gln Ile Arg
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 Asp Arg Ser Cys Leu Lys *
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Met Glu Val Ala Glu Val Glu
1 5

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Ser Pro Leu Asn Pro Ser Cys Lys Ile Met Thr Phe Arg Pro Ser Met	
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Glu Glu Phe Arg Glu Phe Asn Lys Tyr Leu Ala Tyr Met Glu Ser Lys	
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Gly Ala His Arg Ala Gly Leu Ala Lys Val Ile Pro Pro Lys Glu Trp	
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Lys Pro Arg Gln Cys Tyr Asp Asp Ile Asp Asn Leu Leu Ile Pro Ala	
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Pro Ile Gln Gln Met Val Thr Gly Gln Ser Gly Leu Phe Thr Gln Tyr	
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Asn Ile Gln Lys Lys Ala Met Thr Val Lys Glu Phe Arg Gln Leu Ala	
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Gln Glu Ala Gly Glu Phe Met Ile Thr Phe Pro Tyr Gly Tyr His Ala				
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ggg ttt aat cat ggt ttc aac tgt gca gaa tct aca aat ttt gct act	1098			
Gly Phe Asn His Gly Phe Asn Cys Ala Glu Ser Thr Asn Phe Ala Thr				
280	285	290	295	
gtc aga tgg att gac tat gga aaa gtt gcc aaa ttg tgc act tgc agg	1146			
Val Arg Trp Ile Asp Tyr Gly Lys Val Ala Lys Leu Cys Thr Cys Arg				
296	301	306	311	
aaa gac atg gtg aag att tca atg gat atc ttt gtg agg aaa ttt cag	1194			
Lys Asp Met Val Lys Ile Ser Met Asp Ile Phe Val Arg Lys Phe Gln				
312	317	322	327	
cca gac aga tat cag ctt tgg aaa caa gga aag gat ata tac acc att	1242			
Pro Asp Arg Tyr Gln Leu Trp Lys Gln Gly Lys Asp Ile Tyr Thr Ile				
328	333	338	343	
gat cac acg aag cct act cca gca tcc acc cct gaa gta aaa gca tgg	1290			
Asp His Thr Lys Pro Thr Pro Ala Ser Thr Pro Glu Val Lys Ala Trp				
344	349	354	359	
ctg cag agg agg agg aaa gta aga aaa gca tcc cga agc ttc cag tgt	1338			
Leu Gln Arg Arg Arg Lys Val Arg Lys Ala Ser Arg Ser Phe Gln Cys				
360	365	370	375	
gct agg tct acc tct aaa agg cct aag gct gat gag gaa gag gaa gtg	1386			
Ala Arg Ser Thr Ser Lys Arg Pro Lys Ala Asp Glu Glu Glu Glu Val				
376	381	386	391	
tca gat gaa gtc gat ggg gca gag gtc cct aac ccc gac tca gtc aca	1434			
Ser Asp Glu Val Asp Gly Ala Glu Val Pro Asn Pro Asp Ser Val Thr				
392	397	402	407	
gat gac ctc aag gtc agt gaa aag tca gaa gca gca gtg aag ctg agg	1482			
Asp Asp Leu Lys Val Ser Glu Lys Ser Glu Ala Ala Val Lys Leu Arg				
408	413	418	423	
aac aca gaa gca tct tca gaa gaa gag tca tct gct agc agg atg cag	1530			
Asn Thr Glu Ala Ser Ser Glu Glu Glu Ser Ser Ala Ser Arg Met Gln				
424	429	434	439	
gtg gag cag aat tta tca gat cat atc aaa ctc tca gga aac agc tgc	1578			
Val Glu Gln Asn Leu Ser Asp His Ile Lys Leu Ser Gly Asn Ser Cys				
440	445	450	455	

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Leu Ser Thr Ser Val Thr Glu Asp Ile Lys Thr Glu Asp Asp Lys Ala	
456 461 466 471	
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Tyr Ala Tyr Arg Ser Val Pro Ser Ile Ser Ser Glu Ala Asp Asp Ser	
472 477 482 487	
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Ile Pro Leu Ser Thr Gly Tyr Glu Lys Pro Glu Lys Ser Asp Pro Ser	
488 493 498 503	
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Glu Leu Ser Trp Pro Lys Ser Pro Glu Ser Cys Ser Ser Val Ala Glu	
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Ser Asn Gly Val Leu Thr Glu Gly Glu Glu Ser Asp Val Glu Ser His	
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Gly Asn Gly Leu Glu Pro Gly Glu Ile Pro Ala Val Pro Ser Gly Glu	
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Arg Asn Ser Phe Lys Val Pro Ser Ile Ala Glu Gly Glu Asn Lys Thr	
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Ser Lys Ser Trp Arg His Pro Leu Ser Arg Pro Pro Ala Arg Ser Pro	
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Pro Leu Ile His Leu Trp Gln Thr Lys Ser Pro Asn Phe Ala Ala Glu	
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Gln Glu Tyr Asn Ala Thr Val Ala Arg Met Lys Pro His Cys Ala Ile	
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Cys Thr Leu Leu Met Pro Tyr His Lys Pro Asp Ser Ser Asn Glu Glu	
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Asn Asp Ala Arg Trp Glu Thr Lys Leu Asp Glu Val Val Thr Ser Glu	
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Gly Lys Thr Lys Pro Leu Ile Pro Glu Met Cys Phe Ile Tyr Ser Glu	
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Glu Asn Ile Glu Tyr Ser Pro Pro Asn Ala Phe Leu Glu Glu Asp Gly	
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Thr Ser Leu Leu Ile Ser Cys Ala Lys Cys Cys Val Arg Val His Ala	
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Ser Cys Tyr Gly Ile Pro Ser His Glu Ile Cys Asp Gly Trp Leu Cys	
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gcc cgg tgc aaa aga aat gcg tgg aca gca gaa tgc tgt ctc tgc aat	2490
Ala Arg Cys Lys Arg Asn Ala Trp Thr Ala Glu Cys Cys Leu Cys Asn	
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Leu Arg Gly Gly Ala Leu Lys Gln Thr Lys Asn Asn Lys Trp Ala His	
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Val Met Cys Ala Val Ala Val Pro Glu Val Arg Phe Thr Asn Val Pro	
776 781 786 791	
gaa agg aca caa ata gat gta ggc aga ata cct tta cag agg tta aaa	2634
Glu Arg Thr Gln Ile Asp Val Gly Arg Ile Pro Leu Gln Arg Leu Lys	
792 797 802 807	
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Leu Lys Cys Ile Phe Cys Arg His Arg Val Lys Arg Val Ser Gly Ala	
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tgc atc cag tgt tcc tac ggt cgc tgc ccg gcc tcc ttc cat gtc act	2730
Cys Ile Gln Cys Ser Tyr Gly Arg Cys Pro Ala Ser Phe His Val Thr	
824 829 834 839	
tgt gcc cat gct gct ggg gta ctg atg gag cct gat gat tgg cct tat	2778
Cys Ala His Ala Ala Gly Val Leu Met Glu Pro Asp Asp Trp Pro Tyr	
840 845 850 855	
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Val Val Asn Ile Thr Cys Phe Arg His Lys Val Asn Pro Asn Val Lys	
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Ser Lys Ala Cys Glu Lys Val Ile Ser Val Gly Gln Thr Val Ile Thr	
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Lys His Arg Asn Thr Arg Tyr Tyr Ser Cys Arg Val Met Ala Val Thr	
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tcg cag acc ttc tat gag gtc atg ttt gat gat ggc tcc ttt agc aga	2970

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ctc	tat	gga	gca	aaa	tat	ttt	gga	tca	aat	att	gcc	cac	atg	tac	cag	3114
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Val	Glu	Leu	Lys	Met	Asp	Pro	Arg	*								
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 aagcatgggt cagaccgcc cctgggcttc tacatccgag atggc atg agc gtg 654
 Met Ser Val
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 Arg Val Ala Pro Gln Gly Leu Glu Arg Val Pro Gly Ile Phe Ile Ser
 4 9 14 19
 cgc ctg gta cgt ggg ggt ctg gct gag agt aca ggg ctg ctg gcg gtc 750
 Arg Leu Val Arg Gly Gly Leu Ala Glu Ser Thr Gly Leu Leu Ala Val
 20 25 30 35
 agt gat gag atc ctc gag gtc aat ggc att gaa gta gcc ggg aag acc 798
 Ser Asp Glu Ile Leu Glu Val Asn Gly Ile Glu Val Ala Gly Lys Thr
 36 41 46 51
 ttg gac caa gtg acg gac atg atg gtt gcc aac agc cat aac ctc att 846
 Leu Asp Gln Val Thr Asp Met Met Val Ala Asn Ser His Asn Leu Ile
 52 57 62 67
 gtc act gtc aag ccc gcc aac cag cgc aat aac gtg gtg cga ggg gca 894
 Val Thr Val Lys Pro Ala Asn Gln Arg Asn Asn Val Val Arg Gly Ala
 68 73 78 83
 tct ggg cgt ttg aca ggt cct ccc tct gca ggg cct ggg cct gct gag 942
 Ser Gly Arg Leu Thr Gly Pro Pro Ser Ala Gly Pro Gly Pro Ala Glu

84	89	94	99	
cct gat agt gac gat gac agc agt gac ctg gtc att gag aac cgc cag				990
Pro Asp Ser Asp Asp Asp Ser Ser Asp Leu Val Ile Glu Asn Arg Gln				
100	105	110	115	
cct ccc agt tcc aat ggg ctg tct cag ggg ccc ccg tgc tgg gac ctg				1038
Pro Pro Ser Ser Asn Gly Leu Ser Gln Gly Pro Pro Cys Trp Asp Leu				
116	121	126	131	
cac cct ggc tgc cga cat cct ggt acc cgc agc tct ctg ccc tcc ctg				1086
His Pro Gly Cys Arg His Pro Gly Thr Arg Ser Ser Leu Pro Ser Leu				
132	137	142	147	
gat gac cag gag cag gcc agt tct ggc tgg ggg agt cgc att cga gga				1134
Asp Asp Gln Glu Gln Ala Ser Ser Gly Trp Gly Ser Arg Ile Arg Gly				
148	153	158	163	
gat ggt agt ggc ttc agc ctc tga cagtcaggat gaagcccat gccactccac				1188
Asp Gly Ser Gly Phe Ser Leu *				
164	169			
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atattctaga ttgtatcttc cagatgtatc ctggagcaag cagctaagtc acttttgttt	180
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atg gcg gcg cag cca ccc cgc ggg ata cgc ctc agc gcg ctt tgc ccg	285
Met Ala Ala Gln Pro Pro Arg Gly Ile Arg Leu Ser Ala Leu Cys Pro	
1 5 10 15	
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Lys Phe Leu His Thr Asn Ser Thr Ser His Thr Trp Pro Phe Ser Ala	
17 22 27 32	
gtt gct gaa tta ata gat aat gct tat gat cct gat gtg aac gct aaa	381
Val Ala Glu Leu Ile Asp Asn Ala Tyr Asp Pro Asp Val Asn Ala Lys	
33 38 43 48	

caa ata tgg att gac	aaa aca gtg ata aat gac	cat ata tgc ttg aca	429
Gln Ile Trp Ile Asp	Lys Thr Val Ile Asn Asp	His Ile Cys Leu Thr	
49	54	59 64	
ttc acc gac aat ggg	aat ggt atg act tct gat	aaa tta cat aaa atg	477
Phe Thr Asp Asn Gly	Asn Gly Met Thr Ser Asp	Lys Leu His Lys Met	
65	70 75	80	
cta agc ttt ggc ttc	agt gac aaa gtc acc atg	aat ggt cat gtc cca	525
Leu Ser Phe Gly Phe	Ser Asp Lys Val Thr Met	Asn Gly His Val Pro	
81	86 91	96	
gtt gga tta tat ggg	aat ggc ttc aag tgc ggt	tct atg cgt ctg ggt	573
Val Gly Leu Tyr Gly	Asn Gly Phe Lys Ser Gly	Ser Met Arg Leu Gly	
97	102 107	112	
aaa gac gca atc gtt	ttt acc aaa aat gga	gaa agc atg agc gtg ggc	621
Lys Asp Ala Ile Val	Phe Thr Lys Asn Gly Glu	Ser Met Ser Val Gly	
113	118 123	128	
ctt ttg tct cag acc	tac ttg gaa gtc ata aaa	gcg gag cat gtt gtt	669
Leu Leu Ser Gln Thr	Tyr Leu Glu Val Ile Lys	Ala Glu His Val Val	
129	134 139	144	
gtt cca ata gtg gca	ttc aac aag cac cga	cag atg att aat tta gca	717
Val Pro Ile Val Ala	Phe Asn Lys His Arg Gln	Met Ile Asn Leu Ala	
145	150 155	160	
gaa tca aaa gcc agc	ctt gct gca att ctg	gaa cat tct ctg ttt tcc	765
Glu Ser Lys Ala Ser	Leu Ala Ala Ile Leu Glu	His Ser Leu Phe Ser	
161	166 171	176	
acg gaa cag aag tta	ctg gca gaa ctt gat	gct att ata ggc aag aag	813
Thr Glu Gln Lys Leu	Leu Ala Glu Leu Asp Ala	Ile Ile Gly Lys Lys	
177	182 187	192	
ggg acg agg atc atc	att tgg aat ctt aga	agc tac aaa aat gca aca	861
Gly Thr Arg Ile Ile	Ile Trp Asn Leu Arg Ser	Tyr Lys Asn Ala Thr	
193	198 203	208	
gag ttc gat ttt gaa	aag gat aaa tat gat	atc aga att ccc gag gat	909
Glu Phe Asp Phe Glu	Lys Asp Lys Tyr Asp Ile	Arg Ile Pro Glu Asp	
209	214 219	224	
tta gat gag ata aca	ggg aag aag ggg tac	aag aag cag gaa agg atg	957
Leu Asp Glu Ile Thr	Gly Lys Lys Gly Tyr Lys	Lys Lys Gln Glu Arg Met	
225	230 235	240	
gac cag att gcc cct	gag agt gac tat tcc	ctg agg gct tat tgc agt	1005
Asp Gln Ile Ala Pro	Glu Ser Asp Tyr Ser Leu	Arg Ala Tyr Cys Ser	
241	246 251	256	
ata tta tat cta aag	cca aga atg cag atc atc	cta cgt gga cag aaa	1053
Ile Leu Tyr Leu Lys	Pro Arg Met Gln Ile Ile	Leu Arg Gly Gln Lys	
257	262 267	272	

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Val Lys Thr Gln Leu Val Ser Lys Ser Leu Ala Tyr Ile Glu Arg Asp	
273 278 283 288	
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Val Tyr Arg Pro Lys Phe Leu Ser Lys Thr Val Arg Ile Thr Phe Gly	
289 294 299 304	
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Phe Asn Cys Arg Asn Lys Asp His Tyr Gly Ile Met Met Tyr His Arg	
305 310 315 320	
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Asn Arg Leu Ile Lys Ala Tyr Glu Lys Val Gly Cys Gln Leu Arg Ala	
321 326 331 336	
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Lys Pro Thr His Asn Lys Gln Asp Phe Asp Tyr Thr Asn Glu Tyr Arg	
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Leu Thr Ile Thr Ala Leu Gly Glu Lys Leu Asn Asp Tyr Trp Asn Glu	
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Met Lys Val Lys Lys Asn Thr Glu Tyr Pro Leu Asn Leu Pro Val Glu	
385 390 395 400	
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Asp Ile Gln Lys Arg Pro Asp Gln Thr Trp Val Gln Cys Asp Ala Cys	
401 406 411 416	
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Leu Lys Trp Arg Lys Leu Pro Asp Gly Met Asp Gln Leu Pro Glu Lys	
417 422 427 432	
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Trp Tyr Cys Ser Asn Asn Pro Asp Pro Gln Phe Arg Asn Cys Glu Val	
433 438 443 448	
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Pro Glu Glu Pro Glu Asp Glu Asp Leu Val His Pro Thr Tyr Glu Lys	
449 454 459 464	
acc tac aaa aag acc aac aag gaa aaa ttc agg atc aga caa ccg gaa	1677
Thr Tyr Lys Lys Thr Asn Lys Glu Lys Phe Arg Ile Arg Gln Pro Glu	
465 470 475 480	
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Met Ile Pro Arg Ile Asn Ala Glu Leu Leu Phe Arg Pro Thr Ala Leu	
481 486 491 496	
tca act cca agc ttt tct tct cct aag gaa agt gtt cca aga aga cat	1773

Ser	Thr	Pro	Ser	Phe	Ser	Ser	Pro	Lys	Glu	Ser	Val	Pro	Arg	Arg	His	
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Leu	Ser	Glu	Gly	Thr	Asn	Ser	Tyr	Ala	Thr	Arg	Leu	Leu	Asn	Asn	His	
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caa	gtt	cca	cct	cag	tct	gaa	cct	gag	agc	aac	agc	ttg	aaa	cgg	aga	1869
Gln	Val	Pro	Pro	Gln	Ser	Glu	Pro	Glu	Ser	Asn	Ser	Leu	Lys	Arg	Arg	
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561					566					571					576	
gtc	atc	atc	tta	gaa	gaa	aac	agt	acc	ccc	aaa	cct	gca	gta	gat	cat	2013
Val	Ile	Ile	Leu	Glu	Glu	Asn	Ser	Thr	Pro	Lys	Pro	Ala	Val	Asp	His	
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gat	att	gac	atg	aaa	tca	gaa	cag	agt	cac	gtt	gag	caa	ggg	ggg	gtt	2061
Asp	Ile	Asp	Met	Lys	Ser	Glu	Gln	Ser	His	Val	Glu	Gln	Gly	Gly	Val	
593					598					603					608	
cag	gtt	gag	ttt	gtg	ggg	gac	agt	gaa	cct	tgt	ggc	cag	act	ggg	tca	2109
Gln	Val	Glu	Phe	Val	Gly	Asp	Ser	Glu	Pro	Cys	Gly	Gln	Thr	Gly	Ser	
609					614					619					624	
aca	agc	acc	tca	tca	tcc	cga	tgc	gac	cag	gga	aat	act	gca	gct	acc	2157
Thr	Ser	Thr	Ser	Ser	Ser	Arg	Cys	Asp	Gln	Gly	Asn	Thr	Ala	Ala	Thr	
625					630					635					640	
cag	act	gaa	gta	cca	agt	tta	gtt	gtt	aaa	aaa	aaa	aaa	act	gtt	gaa	2205
Gln	Thr	Glu	Val	Pro	Ser	Leu	Val	Val	Lys	Lys	Lys	Lys	Thr	Val	Glu	
641					646					651					656	
gac	gag	ata	gac	gta	aga	aat	gat	gca	gtg	att	ctg	ccc	tcc	tgt	gta	2253
Asp	Glu	Ile	Asp	Val	Arg	Asn	Asp	Ala	Val	Ile	Leu	Pro	Ser	Cys	Val	
657					662					667					672	
gaa	gct	gaa	gca	aag	ata	cat	gaa	acc	cag	gaa	acc	acc	gat	aaa	tct	2301
Glu	Ala	Glu	Ala	Lys	Ile	His	Glu	Thr	Gln	Glu	Thr	Thr	Asp	Lys	Ser	
673					678					683					688	
gca	gat	gat	gca	ggc	tgc	caa	tta	caa	gaa	ctg	aga	aac	cag	cta	ctc	2349
Ala	Asp	Asp	Ala	Gly	Cys	Gln	Leu	Gln	Glu	Leu	Arg	Asn	Gln	Leu	Leu	
689					694					699					704	
ctt	gtc	act	gag	gaa	aaa	gag	aat	tat	aaa	aga	cag	tgt	cat	atg	ttt	2397
Leu	Val	Thr	Glu	Glu	Lys	Glu	Asn	Tyr	Lys	Arg	Gln	Cys	His	Met	Phe	
705					710					715					720	
act	gat	caa	atc	aaa	gtg	tta	caa	cag	agg	ata	cta	gaa	atg	aat	gac	2445
Thr	Asp	Gln	Ile	Lys	Val	Leu	Gln	Gln	Arg	Ile	Leu	Glu	Met	Asn	Asp	

721	726	731	736	
aag tat gtt aag aaa gaa act tgc cat cag tcc act gaa acc gat gct				2493
Lys Tyr Val Lys Lys Glu Thr Cys His Gln Ser Thr Glu Thr Asp Ala				
737	742	747	752	
gta ttt tta ctt gaa agt att aat ggc aaa tct gaa agt cca gac cat				2541
Val Phe Leu Leu Glu Ser Ile Asn Gly Lys Ser Glu Ser Pro Asp His				
753	758	763	768	
atg gta tct cag tat cag caa gct ttg gaa gaa ata gaa agg ctg aaa				2589
Met Val Ser Gln Tyr Gln Gln Ala Leu Glu Glu Ile Glu Arg Leu Lys				
769	774	779	784	
aaa caa tgt agt gct ttg caa cat gta aag gct gaa tgc agc cag tgt				2637
Lys Gln Cys Ser Ala Leu Gln His Val Lys Ala Glu Cys Ser Gln Cys				
785	790	795	800	
tcc aat aat gag agt aaa agt gaa atg gat gag atg gct gtg cag ctt				2685
Ser Asn Asn Glu Ser Lys Ser Glu Met Asp Glu Met Ala Val Gln Leu				
801	806	811	816	
gac gat gtg ttt aga caa ctg gac aaa tgc agt att gag agg gac cag				2733
Asp Asp Val Phe Arg Gln Leu Asp Lys Cys Ser Ile Glu Arg Asp Gln				
817	822	827	832	
tat aaa agt gag gtt gaa ttg ctg gaa atg gaa aag tca caa atc cgt				2781
Tyr Lys Ser Glu Val Glu Leu Leu Glu Met Glu Lys Ser Gln Ile Arg				
833	838	843	848	
tca cag tgt gaa gaa ctc aaa act gaa gta gaa cag tta aaa tct aca				2829
Ser Gln Cys Glu Glu Leu Lys Thr Glu Val Glu Gln Leu Lys Ser Thr				
849	854	859	864	
aat caa cag acg gca aca gat gtt tca aca tca agt aac att gag gag				2877
Asn Gln Gln Thr Ala Thr Asp Val Ser Thr Ser Ser Asn Ile Glu Glu				
865	870	875	880	
tct gta aat cat atg gat gga gaa agc ctc aaa ctc cga tct ctt cga				2925
Ser Val Asn His Met Asp Gly Glu Ser Leu Lys Leu Arg Ser Leu Arg				
881	886	891	896	
gtt aac gta gga caa ctg ctg gct atg att gtg cct gat ctt gat ctt				2973
Val Asn Val Gly Gln Leu Leu Ala Met Ile Val Pro Asp Leu Asp Leu				
897	902	907	912	
cag caa gtg aat tac gat gtt gat gta gtt gat gag att tta gga caa				3021
Gln Gln Val Asn Tyr Asp Val Asp Val Val Asp Glu Ile Leu Gly Gln				
913	918	923	928	
gtt gtt gaa caa atg agt gaa atc agt agt act taa agta tatgttatgt				3071
Val Val Glu Gln Met Ser Glu Ile Ser Ser Thr *				
929	934	939		
aagataaaat atttgctcaa ttcttttgggt tgtacagctt tcaaaatata attaattttg				3131
ttttatagat atgataggca acagactgaa aaccataatc tttactgtat tctatgcatt				3191

caaatgtggt cacaaatatt gtggacacat tatcttatgt ttgaaatac ctgtgaattg 3251
 ttggcattga gcagctgaag ctaactcatg actctgtttt gaatgtaaatt atttgtaatt 3311
 aagcctgcac atatTTTTTT attgccttag agtactcaag tgtttttcac caagagcttt 3371
 tcaggttgcc cctaagcttt gtgcaatttt ttctggttcc ccaaagtgtata tttttctcta 3431
 agtcgagggc tatgccataa tacaaatgga aatgtttacct ttgattttct tataaaggag 3491
 tttaaatagg atttttaaat aatgtagtaa cactcctgat acaactctgg ttataagtga 3551
 attgagcatt aatgtttctt ttgtataaat tctgtcctg aaatatttta ttcatgaaaa 3611
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 ccttaggatt atagtattac atgccataaa atactatgct ttattggtcc catgttttgt 4031
 gcaattttaa agagatggct ttctattaag tataaactat gtatatataa gaaccatatt 4091
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 ctttgttttt gaacattcaa tccgttcatt ttgtatgtat gcttaatacg tgcgggtcat 4211
 atacagtatt gaatttttac tgtatagtaa ttctggaaag agcaaataaa tgaagattgt 4271
 ttttatttgc ctgataaagt aattgaaagt gtatttttgg tatgaagctg gttttctgtc 4331
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 aactgttc 4399

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 <213> Homo sapiens

<220>
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ttcccgccg ccgctccgt ccgacggcg gcttcccaa ggcggcagga ctccgcgcg	120
c atg gac agg ccg gcg gcg gcg gcg gcg ggc tgc gag ggc ggc	166
Met Asp Arg Pro Ala Ala Ala Ala Ala Gly Cys Glu Gly Gly	
1 5 10	
ggg ggc ccg aac ccg ggg ccg gcg ggc ggc agg agg cct cct cgg gcc	214
Gly Gly Pro Asn Pro Gly Pro Ala Gly Gly Arg Arg Pro Pro Arg Ala	
16 21 26 31	
gcg ggg ggc gcc acc gcc ggc tcc cgg cag ccc agc gtg gag acc ctg	262
Ala Gly Gly Ala Thr Ala Gly Ser Arg Gln Pro Ser Val Glu Thr Leu	
32 37 42 47	
gac agt ccc aca gga tca cat gtt gaa tgg tgt aaa cag ctt ata gct	310
Asp Ser Pro Thr Gly Ser His Val Glu Trp Cys Lys Gln Leu Ile Ala	
48 53 58 63	
gct aca att tct agt cag att tca ggt tca gtg aca tca gaa aat gtg	358
Ala Thr Ile Ser Ser Gln Ile Ser Gly Ser Val Thr Ser Glu Asn Val	
64 69 74 79	
tcc aga gat tac aag gct cta agg gat gga aat aag ctg gca cag atg	406
Ser Arg Asp Tyr Lys Ala Leu Arg Asp Gly Asn Lys Leu Ala Gln Met	
80 85 90 95	
gaa gag gct cca ctt ttc cca gga gaa tca att aaa gcc att gtg aaa	454
Glu Glu Ala Pro Leu Phe Pro Gly Glu Ser Ile Lys Ala Ile Val Lys	
96 101 106 111	
gat gtc atg tat atc tgc cca ttt atg gga gca gtg agt gga acc ctg	502
Asp Val Met Tyr Ile Cys Pro Phe Met Gly Ala Val Ser Gly Thr Leu	
112 117 122 127	
aca gtg acg gac ttt aag ctg tac ttc aaa aat gtc gag agg gac ccg	550
Thr Val Thr Asp Phe Lys Leu Tyr Phe Lys Asn Val Glu Arg Asp Pro	
128 133 138 143	
cat ttt atc ctt gat gtt ccc ctt gga gtg atc agc aga gtg gag aag	598
His Phe Ile Leu Asp Val Pro Leu Gly Val Ile Ser Arg Val Glu Lys	
144 149 154 159	
att gga gca cag agc cat gga gac aat tcc tgt ggt ata gag ata gtg	646
Ile Gly Ala Gln Ser His Gly Asp Asn Ser Cys Gly Ile Glu Ile Val	
160 165 170 175	
tgc aag gat atg agg aac ttg cgg ctt gct tat aaa cag gaa gaa cag	694
Cys Lys Asp Met Arg Asn Leu Arg Leu Ala Tyr Lys Gln Glu Glu Gln	
176 181 186 191	
agt aaa cta ggg ata ttt gaa aac ctc aac aaa cat gca ttt cct ctt	742
Ser Lys Leu Gly Ile Phe Glu Asn Leu Asn Lys His Ala Phe Pro Leu	
192 197 202 207	
tct aac gga cag gca cta ttt gca ttc agc tat aaa gaa aaa ttt cca	790
Ser Asn Gly Gln Ala Leu Phe Ala Phe Ser Tyr Lys Glu Lys Phe Pro	

208	213	218	223	
att aat ggc tgg aaa gtt tat gat cca gta tct gaa tat aag aga cag				838
Ile Asn Gly Trp Lys Val Tyr Asp Pro Val Ser Glu Tyr Lys Arg Gln				
224	229	234	239	
ggc ttg cca aat gag agt tgg aaa ata tcc aaa ata aac agt aat tat				886
Gly Leu Pro Asn Glu Ser Trp Lys Ile Ser Lys Ile Asn Ser Asn Tyr				
240	245	250	255	
gag ttc tgt gac acc tac cct gcc atc att gtt gtg cca act agt gta				934
Glu Phe Cys Asp Thr Tyr Pro Ala Ile Ile Val Val Pro Thr Ser Val				
256	261	266	271	
aaa gat gat gac ctt tca aaa gtg gca gct ttt cga gca aaa ggc aga				982
Lys Asp Asp Asp Leu Ser Lys Val Ala Ala Phe Arg Ala Lys Gly Arg				
272	277	282	287	
gtc cct gtg ttg tca tgg att cat ccg gaa agt caa gca acg att acc				1030
Val Pro Val Leu Ser Trp Ile His Pro Glu Ser Gln Ala Thr Ile Thr				
288	293	298	303	
cgt tgc agc cag cca ctt gtg ggt ccc aat gat aag cgc tgc aaa gag				1078
Arg Cys Ser Gln Pro Leu Val Gly Pro Asn Asp Lys Arg Cys Lys Glu				
304	309	314	319	
gat gaa aaa tac ttg caa aca ata atg gat gct aac gca cag tca cac				1126
Asp Glu Lys Tyr Leu Gln Thr Ile Met Asp Ala Asn Ala Gln Ser His				
320	325	330	335	
aag ctt atc atc ttt gat gct cga caa aac agt gtc gct gat acc aac				1174
Lys Leu Ile Ile Phe Asp Ala Arg Gln Asn Ser Val Ala Asp Thr Asn				
336	341	346	351	
aag aca aag ggt gga gga tat gaa agt gaa agt gct tac cca aat gca				1222
Lys Thr Lys Gly Gly Gly Tyr Glu Ser Glu Ser Ala Tyr Pro Asn Ala				
352	357	362	367	
gaa ctt gtg ttc ttg gag atc cac aac att cat gtc atg cga gag tca				1270
Glu Leu Val Phe Leu Glu Ile His Asn Ile His Val Met Arg Glu Ser				
368	373	378	383	
cta cgc aaa tta aaa gag att gtg tac cct tcg atc gat gag gcg cgg				1318
Leu Arg Lys Leu Lys Glu Ile Val Tyr Pro Ser Ile Asp Glu Ala Arg				
384	389	394	399	
tgg ctc tcc aat gtg gat ggg acg cat tgg ctg gaa tat ata agg atg				1366
Trp Leu Ser Asn Val Asp Gly Thr His Trp Leu Glu Tyr Ile Arg Met				
400	405	410	415	
ctg ctt gct ggg gca gta aga att gct gat aaa ata gaa tct ggg aaa				1414
Leu Leu Ala Gly Ala Val Arg Ile Ala Asp Lys Ile Glu Ser Gly Lys				
416	421	426	431	
aca tct gtg gtg gtg cat tgc agc gac ggt tgg gac cga aca gcc cag				1462
Thr Ser Val Val Val His Cys Ser Asp Gly Trp Asp Arg Thr Ala Gln				
432	437	442	447	

ctc	aca	tct	ctg	gct	atg	cta	atg	ttg	gac	agt	tac	tac	agg	acc	att	1510
Leu	Thr	Ser	Leu	Ala	Met	Leu	Met	Leu	Asp	Ser	Tyr	Tyr	Arg	Thr	Ile	
448					453					458					463	
aaa	gga	ttt	gaa	act	ctc	gta	gaa	aag	gag	tgg	ata	agc	ttt	gga	cac	1558
Lys	Gly	Phe	Glu	Thr	Leu	Val	Glu	Lys	Glu	Trp	Ile	Ser	Phe	Gly	His	
464					469					474					479	
agg	ttt	gca	ctg	cga	gtg	ggc	cat	ggt	aat	gac	aac	cat	gcg	gat	gct	1606
Arg	Phe	Ala	Leu	Arg	Val	Gly	His	Gly	Asn	Asp	Asn	His	Ala	Asp	Ala	
480					485					490					495	
gac	cga	tct	ccc	ata	ttt	ctg	cag	ttt	gtt	gat	tgt	gtt	tgg	caa	atg	1654
Asp	Arg	Ser	Pro	Ile	Phe	Leu	Gln	Phe	Val	Asp	Cys	Val	Trp	Gln	Met	
496					501					506					511	
aca	agg	cag	ttt	cct	tca	gca	ttc	gag	ttt	aat	gag	cta	ttc	ttg	att	1702
Thr	Arg	Gln	Phe	Pro	Ser	Ala	Phe	Glu	Phe	Asn	Glu	Leu	Phe	Leu	Ile	
512					517					522					527	
aca	att	ttg	gat	cac	ctt	tat	agc	tgt	ctt	ttt	ggg	acc	ttt	ttg	tgc	1750
Thr	Ile	Leu	Asp	His	Leu	Tyr	Ser	Cys	Leu	Phe	Gly	Thr	Phe	Leu	Cys	
528					533					538					543	
aac	tgt	gaa	cag	cag	cga	ttc	aaa	gag	gat	gta	tat	aca	aag	acg	ata	1798
Asn	Cys	Glu	Gln	Gln	Arg	Phe	Lys	Glu	Asp	Val	Tyr	Thr	Lys	Thr	Ile	
544					549					554					559	
tct	tta	tgg	tcg	tat	atc	aat	agc	cag	cta	gac	gag	ttt	tct	aat	ccc	1846
Ser	Leu	Trp	Ser	Tyr	Ile	Asn	Ser	Gln	Leu	Asp	Glu	Phe	Ser	Asn	Pro	
560					565					570					575	
ttc	ttt	gtg	aat	tat	gaa	aac	cac	gtg	tta	tat	cct	gtt	gct	agt	ctg	1894
Phe	Phe	Val	Asn	Tyr	Glu	Asn	His	Val	Leu	Tyr	Pro	Val	Ala	Ser	Leu	
576					581					586					591	
agt	cat	ttg	gaa	ttg	tgg	gta	aat	tat	tat	gta	cga	tgg	aat	cca	cgg	1942
Ser	His	Leu	Glu	Leu	Trp	Val	Asn	Tyr	Tyr	Val	Arg	Trp	Asn	Pro	Arg	
592					597					602					607	
atg	aga	cct	cag	atg	ccc	att	cac	cag	aat	ctc	aag	gag	ctg	ctg	gcc	1990
Met	Arg	Pro	Gln	Met	Pro	Ile	His	Gln	Asn	Leu	Lys	Glu	Leu	Leu	Ala	
608					613					618					623	
gtc	agg	gcg	gag	ctg	cag	aag	cgt	gtg	gag	ggc	cta	cag	cgg	gag	gtg	2038
Val	Arg	Ala	Glu	Leu	Gln	Lys	Arg	Val	Glu	Gly	Leu	Gln	Arg	Glu	Val	
624					629					634					639	
gcc	acg	cgc	gcc	gtc	tca	tcc	tca	tct	gag	cgg	ggc	tcc	tcg	ccc	tcc	2086
Ala	Thr	Arg	Ala	Val	Ser	Ser	Ser	Ser	Glu	Arg	Gly	Ser	Ser	Pro	Ser	
640					645					650					655	
cac	tcc	gcc	acc	tcc	gtc	cac	acc	tcg	gtc	tga	tggg	cgcg	aaat	atgtaa		2137
His	Ser	Ala	Thr	Ser	Val	His	Thr	Ser	Val	*						
656					661					666						

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 aagccgttat gggtcaggtt tttaaaaact ggtacagtat tgtatttgtc tcactgtgtg 2497
 cactgtatTT caatcatctg taattaaaat gatcatatgt ttgctccctg gtctttttta 2557
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 actttatgtg atttaattca ttcagtaaAT tgt 2710

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 <222> (463)..(1470)

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 <222> (1)...(2411)
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 accggatgta agaaccaaac actttcctgc ctcttaatgc aaccaaagaa agcttaggag 180
 gcatcgTTTT ttgttttgat cgctgaatac tgaattcctg ccttccctcc tagttcacgt 240
 tccttgggtt aagttttgaa ttgtttgttt acagaccagc gtttggatct atgcaaacta 300
 aacctctcag atactgatgc agttcgtggc cagatagtgg tcagtttaca gacacgagac 360
 agaataggaa ccggcggctc ggtggtggac tgcagaggac tgtagaaaaa tgaaggaacg 420
 gtgtatgaag actccgggcc tgggaggccg ctcagctgct tc atg gag gaa cca 474
 Met Glu Glu Pro
 1
 gcc cct tac aca gat agc acc ggt gct gct gct gga gga ggg aat tgc 522

Ala	Pro	Tyr	Thr	Asp	Ser	Thr	Gly	Ala	Ala	Ala	Gly	Gly	Gly	Asn	Cys	
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agg	ttc	gtg	gag	tcc	cca	agt	caa	gat	caa	aga	ctt	cag	gca	cag	cgg	570
Arg	Phe	Val	Glu	Ser	Pro	Ser	Gln	Asp	Gln	Arg	Leu	Gln	Ala	Gln	Arg	
21					26					31					36	
ctt	cga	aac	cct	gat	gtg	cga	ggt	tca	cta	cag	acg	ccc	cag	aac	cga	618
Leu	Arg	Asn	Pro	Asp	Val	Arg	Gly	Ser	Leu	Gln	Thr	Pro	Gln	Asn	Arg	
37					42					47					52	
cca	cac	ggc	cac	cag	tcc	ccg	gaa	ctg	ccc	gaa	ggc	tac	gaa	caa	aga	666
Pro	His	Gly	His	Gln	Ser	Pro	Glu	Leu	Pro	Glu	Gly	Tyr	Glu	Gln	Arg	
53					58					63					68	
aca	aca	gtc	cag	ggc	caa	gtt	tac	ttt	ttg	cat	aca	cag	act	gga	gtt	714
Thr	Thr	Val	Gln	Gly	Gln	Val	Tyr	Phe	Leu	His	Thr	Gln	Thr	Gly	Val	
69					74					79					84	
agc	acg	tgg	cac	gac	ccc	agg	ata	cca	aga	gac	ctt	aac	agt	gtg	aac	762
Ser	Thr	Trp	His	Asp	Pro	Arg	Ile	Pro	Arg	Asp	Leu	Asn	Ser	Val	Asn	
85					90					95					100	
tgt	gat	gaa	ctt	gga	cca	ctg	ccg	cca	ggc	tgg	gaa	gtc	aga	agt	aca	810
Cys	Asp	Glu	Leu	Gly	Pro	Leu	Pro	Pro	Gly	Trp	Glu	Val	Arg	Ser	Thr	
101					106					111					116	
gtt	tct	ggg	agg	ata	tat	ttt	gta	gat	cat	aat	aac	cga	aca	acc	cag	858
Val	Ser	Gly	Arg	Ile	Tyr	Phe	Val	Asp	His	Asn	Asn	Arg	Thr	Thr	Gln	
117					122					127					132	
ttt	aca	gac	cca	agg	tta	cac	cac	atc	atg	aat	cac	cag	tgc	caa	ctc	906
Phe	Thr	Asp	Pro	Arg	Leu	His	His	Ile	Met	Asn	His	Gln	Cys	Gln	Leu	
133					138					143					148	
aag	gag	ccc	agc	cag	ccg	ctg	cca	ctg	ccc	agt	gag	ggc	tct	ctg	gag	954
Lys	Glu	Pro	Ser	Gln	Pro	Leu	Pro	Leu	Pro	Ser	Glu	Gly	Ser	Leu	Glu	
149					154					159					164	
gac	gag	gag	ctt	cct	gcc	cag	aga	tac	gaa	aga	gat	cta	gtc	cag	aag	1002
Asp	Glu	Glu	Leu	Pro	Ala	Gln	Arg	Tyr	Glu	Arg	Asp	Leu	Val	Gln	Lys	
165					170					175					180	
ctg	aaa	gtc	ctc	aga	cac	gaa	ctg	tcg	ctt	cag	cag	ccc	caa	gct	ggc	1050
Leu	Lys	Val	Leu	Arg	His	Glu	Leu	Ser	Leu	Gln	Gln	Pro	Gln	Ala	Gly	
181					186					191					196	
cat	tgc	cgc	atc	gaa	gtg	tcc	aga	gaa	gaa	atc	ttt	gag	gag	tct	tac	1098
His	Cys	Arg	Ile	Glu	Val	Ser	Arg	Glu	Glu	Ile	Phe	Glu	Glu	Ser	Tyr	
197					202					207					212	
cgc	cag	ata	atg	aag	atg	cga	ccg	aaa	gac	ttg	aaa	aaa	cgg	ctg	atg	1146
Arg	Gln	Ile	Met	Lys	Met	Arg	Pro	Lys	Asp	Leu	Lys	Lys	Arg	Leu	Met	
213					218					223					228	
gtg	aaa	ttc	cgt	ggg	gaa	gaa	ggt	ttg	gat	tac	ggc	ggc	gtg	gcc	agg	1194
Val	Lys	Phe	Arg	Gly	Glu	Glu	Gly	Leu	Asp	Tyr	Gly	Gly	Val	Ala	Arg	

229	234	239	244	
gag tgg ctt tac ttg ctg tgc cat gaa atg ctg aat cct tat tac ggg				1242
Glu Trp Leu Tyr Leu Leu Cys His Glu Met Leu Asn Pro Tyr Tyr Gly				
245	250	255	260	
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Leu Phe Gln Tyr Ser Thr Asp Asn Ile Tyr Met Leu Gln Ile Asn Pro				
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Asp Ser Ser Ile Asn Pro Asp His Leu Ser Tyr Phe His Phe Val Gly				
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Arg Ile Met Gly Leu Gly Cys Val Pro Trp Thr Leu His Gln Arg Gly				
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Leu His Ser Ala Leu Leu Gln Ala Ala Ala Gly Glu Ala His Pro Ala				
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Leu Arg Ser Gly Ile Cys Gly Pro Arg Ala Ala *				
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caacctgcct agacacactc agaaccaggt ttaagaagat cattcccatc ccagagcaga      180
gc  atg gtt cag atg gtg tgt cac ctt ctg gaa tgt ctc ctg acc acg      227
    Met Val Gln Met Val Cys His Leu Leu Glu Cys Leu Leu Thr Thr
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Glu Asp Ile Pro Ala Asp Cys Pro Lys Glu Ile Tyr Glu His Tyr Phe
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gtg ttt gct gcc atc tgg gct ttc ggc gga gca atg gtc caa gat cag      323
Val Phe Ala Ala Ile Trp Ala Phe Gly Gly Ala Met Val Gln Asp Gln
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ctt gtg gac tac cgg gca gag ttc agc aaa tgg tgg ctg act gag ttc      371
Leu Val Asp Tyr Arg Ala Glu Phe Ser Lys Trp Trp Leu Thr Glu Phe
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aaa aca gtc aag ttt cct tcc caa gga acc atc ttt gac tat tac atc      419
Lys Thr Val Lys Phe Pro Ser Gln Gly Thr Ile Phe Asp Tyr Tyr Ile
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Asp Pro Glu Thr Lys Lys Phe Glu Pro Trp Ser Lys Leu Val Pro Gln
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Phe Glu Phe Asp Pro Glu Met Pro Leu Gln Ala Cys Leu Val His Thr
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Ser Glu Thr Ile Arg Val Cys Tyr Phe Met Glu Arg Leu Met Ala Arg
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Gln Arg Pro Val Met Leu Val Gly Thr Ala Gly Thr Gly Lys Ser Val
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Lys Asn Val Pro Phe	Asn Tyr Tyr Thr Thr	Ser Ala Met Leu Gln Ala	
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Val Leu Glu Lys Pro	Leu Glu Lys Lys Ala	Gly Arg Asn Tyr Gly Pro	
176	181	186	191
cca ggg aac aag aaa	ctc atc tat ttc att	gat gac atg aac atg cct	803
Pro Gly Asn Lys Lys	Leu Ile Tyr Phe Ile	Asp Asp Met Asn Met Pro	
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Glu Val Asp Ala Tyr	Gly Thr Val Gln Pro	His Thr Ile Ile Arg Gln	
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cat ctg gac tat ggc	cac tgg tat gat cgg	agc aag ctg tcc cta aag	899
His Leu Asp Tyr Gly	His Trp Tyr Asp Arg	Ser Lys Leu Ser Leu Lys	
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Glu Ile Thr Asn Val	Gln Tyr Val Ser Cys	Met Asn Pro Thr Ala Gly	
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Ser Phe Thr Ile Asn	Pro Arg Leu Gln Arg	His Phe Ser Val Phe Val	
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Ser Ile Pro Pro Leu	Ile Asp Leu Ala Leu	Ala Phe His Gln Lys Ile	
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Ala Thr Thr Phe Leu	Pro Thr Gly Ile Lys	Phe His Tyr Ile Phe Asn	
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Ser Asn Arg Val Tyr	Arg Asp Lys Met Val	Glu Glu Lys Asp Phe Asp	

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Ile Glu Asp Pro Val	Glu Gln Thr Gln Ser	Pro Asn Leu Tyr Cys	His	
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1984	1989	1994	1999		
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2000	2005	2010	2015		
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2016	2021	2026	2031		
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2032	2037	2042	2047		
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2048	2053	2058	2063		
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2064					
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caacctgcct agacacactc agaaccaggt ttaagaagat cattcccatc ccagagcaga	180
gc atg gtt cag atg gtg tgt cac ctt ctg gaa tgt ctc ctg acc acg	227
Met Val Gln Met Val Cys His Leu Leu Glu Cys Leu Leu Thr Thr	
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Glu Asp Ile Pro Ala Asp Cys Pro Lys Glu Ile Tyr Glu His Tyr Phe	
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Leu Val Asp Tyr Arg Ala Glu Phe Ser Lys Trp Trp Leu Thr Glu Phe	
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Lys Thr Val Lys Phe Pro Ser Gln Gly Thr Ile Phe Asp Tyr Tyr Ile	
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Phe Glu Phe Asp Pro Glu Met Pro Leu Gln Ala Cys Leu Val His Thr	
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Ser Glu Thr Ile Arg Val Cys Tyr Phe Met Glu Arg Leu Met Ala Arg	
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Val Asn Thr Val Met Asp Leu Val Leu Phe Glu Asp Ala Met Arg His	
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Val Cys His Ile Asn Arg Ile Leu Glu Ser Pro Arg Gly Asn Ala Leu	
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783 788 793 798	
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Leu Arg Lys Leu Phe Val Gln Asp Leu Ala Thr Arg Val Lys Lys Ser	
799 804 809 814	
gct gag att gat tct gat gac acc gga ggc agc gct gct cag aag caa	2917
Ala Glu Ile Asp Ser Asp Asp Thr Gly Gly Ser Ala Ala Gln Lys Gln	
815 820 825 830	
aaa atc tcc ttt ctt gaa aat aat ctt gaa cag ctc act aaa gtg cac	2965
Lys Ile Ser Phe Leu Glu Asn Asn Leu Glu Gln Leu Thr Lys Val His	

831	836	841	846	
aaa cag ttg gta cgt	gat aat gca gat ctc	cgc tgt gaa ctt cct	aag	3013
Lys Gln Leu Val Arg	Asp Asn Ala Asp Leu	Arg Cys Glu Leu Pro	Lys	
847	852	857	862	
ttg gaa aag cga ctt	cga gct aca gct gag	aga gtg aaa gct ttg	gaa	3061
Leu Glu Lys Arg Leu	Arg Ala Thr Ala Glu	Arg Val Lys Ala Leu	Glu	
863	868	873	878	
tca gca ctg aaa gaa	gct aaa gaa aat gca	tct cgt gat cgc aaa	cgc	3109
Ser Ala Leu Lys Glu	Ala Lys Glu Asn Ala	Ser Arg Asp Arg Lys	Arg	
879	884	889	894	
tat cag caa gaa gta	gat cgc ata aag gaa	gca gtc agg tca aag	aat	3157
Tyr Gln Gln Glu Val	Asp Arg Ile Lys Glu	Ala Val Arg Ser Lys	Asn	
895	900	905	910	
atg gcc aga aga ggg	cat tct gca cag att	gct aaa cct att cgt	ccc	3205
Met Ala Arg Arg Gly	His Ser Ala Gln Ile	Ala Lys Pro Ile Arg	Pro	
911	916	921	926	
ggg caa cat cca gca	gct tct cca act cac	cca agt gca att cgt	gga	3253
Gly Gln His Pro Ala	Ala Ser Pro Thr His	Pro Ser Ala Ile Arg	Gly	
927	932	937	942	
gga ggt gca ttt gtt	cag aac agc cag cca	gtg gca gtg cga ggt	gga	3301
Gly Gly Ala Phe Val	Gln Asn Ser Gln Pro	Val Ala Val Arg Gly	Gly	
943	948	953	958	
gga ggc aaa caa gtg	tta tgggtt ataccatcc	acaggtgtta aaaagtaatc		3355
Gly Gly Lys Gln Val	*			
959	964			
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gggattgtag aattataact	tttaa			3440

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Met	Ala	Ser	Val	Gln	Ala	Ser	Arg	Arg	Gln	
1				5				10		
ctg	ccc	aag	atg	ccg	tgg	gcc	atg	gtg	tgg	96
Leu	Pro	Lys	Met	Pro	Trp	Ala	Met	Val	Trp	

17	22	27	32	
tgt cgc ggc tgc gtg	aac ttc gag ggc ggc gac	cgc atc gaa ctg ctc	144	
Cys Arg Gly Cys Val	Asn Phe Glu Gly Ala Asp	Arg Ile Glu Leu Leu		
33	38	43	48	
atc gat gcc gcc cgc	cag ctc aag cgc agc cac	gtg ctc ccc gag ggc	192	
Ile Asp Ala Ala Arg	Gln Leu Lys Arg Ser His	Val Leu Pro Glu Gly		
49	54	59	64	
cgc tcg ccc ggg ccc	ccg gcc ctt aag cac ccg	gcc acc aag gac ctg	240	
Arg Ser Pro Gly Pro	Pro Ala Leu Lys His Pro	Ala Thr Lys Asp Leu		
65	70	75	80	
gcg gcg gca gcc gca	cag ggg ccc cag ctg ccg	ccc ccg cag gcc cag	288	
Ala Ala Ala Ala Ala	Gln Gly Pro Gln Leu Pro	Pro Pro Gln Ala Gln		
81	86	91	96	
ccc cag ccg tca ggg	acc ggc ggc ggc gtg tcg	ggc cag gac cgc tat	336	
Pro Gln Pro Ser Gly	Thr Gly Gly Gly Val Ser	Gly Gln Asp Arg Tyr		
97	102	107	112	
gac agg gcc aca tca	tca ggc cgc ctc ccc ctg	ccc tcg ccc gcc ctg	384	
Asp Arg Ala Thr Ser	Ser Gly Arg Leu Pro Leu	Pro Ser Pro Ala Leu		
113	118	123	128	
gag tac act ctg ggg	tcc cgc ctg gcc aat ggg	ctg ggc cgt gag gag	432	
Glu Tyr Thr Leu Gly	Ser Arg Leu Ala Asn Gly	Leu Gly Arg Glu Glu		
129	134	139	144	
gcc gtg gct gag ggg	gcg cga agg gcc ttg ctt	ggc tcc atg cct ggc	480	
Ala Val Ala Glu Gly	Ala Arg Arg Ala Leu Leu	Gly Ser Met Pro Gly		
145	150	155	160	
ttg atg ccc cct ggg	ctg ctg gca gct gca gtg	tct ggc ctg gga agc	528	
Leu Met Pro Pro Gly	Leu Leu Ala Ala Ala Val	Ser Gly Leu Gly Ser		
161	166	171	176	
cga ggc ctg acg ctg	gca ccc ggc ttg agt cct	gcc cgt ccc ctc ttc	576	
Arg Gly Leu Thr Leu	Ala Pro Gly Leu Ser Pro	Ala Arg Pro Leu Phe		
177	182	187	192	
ggc tcc gat ttc gag	aaa gag aag cag cag agg	aat gcg gac tgt ctg	624	
Gly Ser Asp Phe Glu	Lys Glu Lys Gln Gln Arg	Asn Ala Asp Cys Leu		
193	198	203	208	
gca gaa ctg aac gag	gcc atg cga ggc cgg gca	gag gaa tgg cac ggg	672	
Ala Glu Leu Asn Glu	Ala Met Arg Gly Arg Ala	Glu Glu Trp His Gly		
209	214	219	224	
cgc ccc aaa gca gtg	cgg gaa cag cta ctg gcg	ctg tcc gcc tgc gcc	720	
Arg Pro Lys Ala Val	Arg Glu Gln Leu Leu Ala	Leu Ser Ala Cys Ala		
225	230	235	240	
ccg ttc aat gtg cgc	ttc aag aag gat cac ggg	ctg gtg ggg cga gtg	768	
Pro Phe Asn Val Arg	Phe Lys Lys Asp His Gly	Leu Val Gly Arg Val		
241	246	251	256	

ttc gcc ttc gat gct act gcc cgt cct cca gga tac gag ttc gag ctg	816
Phe Ala Phe Asp Ala Thr Ala Arg Pro Pro Gly Tyr Glu Phe Glu Leu	
257 262 267 272	
aag ctc ttc acc gaa tac ccc tgt ggt tcc ggc aat gtg tac gcc ggc	864
Lys Leu Phe Thr Glu Tyr Pro Cys Gly Ser Gly Asn Val Tyr Ala Gly	
273 278 283 288	
gtc ctg gca gtg gct cgc cag atg ttc cac gat gct ctg cgg gag ccg	912
Val Leu Ala Val Ala Arg Gln Met Phe His Asp Ala Leu Arg Glu Pro	
289 294 299 304	
ggc aag gca ctg gct tct tcg ggc ttc aag tac ctc gaa tat gaa cgc	960
Gly Lys Ala Leu Ala Ser Ser Gly Phe Lys Tyr Leu Glu Tyr Glu Arg	
305 310 315 320	
cgg cat gga tca gga gaa tgg cgg cag ctg ggc gag ctg ctt acc gac	1008
Arg His Gly Ser Gly Glu Trp Arg Gln Leu Gly Glu Leu Leu Thr Asp	
321 326 331 336	
ggc gtc cgc agc ttc cgc gag cca gct ccc gcg gag gcc ctg ccc cag	1056
Gly Val Arg Ser Phe Arg Glu Pro Ala Pro Ala Glu Ala Leu Pro Gln	
337 342 347 352	
cag tac cca gag ccg gcc cct gcg gct ctc tgt ggc cca ccc ccg cga	1104
Gln Tyr Pro Glu Pro Ala Pro Ala Ala Leu Cys Gly Pro Pro Pro Arg	
353 358 363 368	
gcc cca tcc cgg aac ctg gcg ccc acg ccg cgc cgt cgc aag gca tcc	1152
Ala Pro Ser Arg Asn Leu Ala Pro Thr Pro Arg Arg Arg Lys Ala Ser	
369 374 379 384	
ccc gag ccg gag ggc gag gcg gct ggg aag atg acc acc gag gag cag	1200
Pro Glu Pro Glu Gly Glu Ala Ala Gly Lys Met Thr Thr Glu Glu Gln	
385 390 395 400	
cag caa cgg cac tgg gtg gca ccc ggc ggc ccg tac tcc gct gag acc	1248
Gln Gln Arg His Trp Val Ala Pro Gly Gly Pro Tyr Ser Ala Glu Thr	
401 406 411 416	
cct ggt gtg ccc tcg ccc att gcc gcc ctg aag aat gtg gcc gaa gcc	1296
Pro Gly Val Pro Ser Pro Ile Ala Ala Leu Lys Asn Val Ala Glu Ala	
417 422 427 432	
ctg ggc cac tca ccc aag gac cct ggc gga ggc ggg ggg cct gtg cgt	1344
Leu Gly His Ser Pro Lys Asp Pro Gly Gly Gly Gly Gly Pro Val Arg	
433 438 443 448	
gca ggg ggc gcc agc cct gca gcc tcc tcc acg gcc cag ccg cca acc	1392
Ala Gly Gly Ala Ser Pro Ala Ala Ser Ser Thr Ala Gln Pro Pro Thr	
449 454 459 464	
cag cat cgc ctt gtg gcc cgc aac ggc gaa gca gaa gtc agt ccc aca	1440
Gln His Arg Leu Val Ala Arg Asn Gly Glu Ala Glu Val Ser Pro Thr	
465 470 475 480	

gcg ggg gcc gaa gct gtc agc ggg ggt ggc agc ggc act ggg gcg acc	1488
Ala Gly Ala Glu Ala Val Ser Gly Gly Gly Ser Gly Thr Gly Ala Thr	
481 486 491 496	
cct ggg gcc ccc ctg tgc tgt acc ctg tgc agg gag cgg cta gaa gac	1536
Pro Gly Ala Pro Leu Cys Cys Thr Leu Cys Arg Glu Arg Leu Glu Asp	
497 502 507 512	
acc cac ttc gtc cag tgc ccc tcg gtg ccc gga cac aag ttc tgc ttt	1584
Thr His Phe Val Gln Cys Pro Ser Val Pro Gly His Lys Phe Cys Phe	
513 518 523 528	
ccc tgc tcc cgg gag ttc atc aag gcg cag ggc ccg gcc ggg gag gtg	1632
Pro Cys Ser Arg Glu Phe Ile Lys Ala Gln Gly Pro Ala Gly Glu Val	
529 534 539 544	
tac tgc ccg agc gga gac aag tgc ccg ctg gtc ggc tcc tcc gtg ccc	1680
Tyr Cys Pro Ser Gly Asp Lys Cys Pro Leu Val Gly Ser Ser Val Pro	
545 550 555 560	
tgg gcc ttc atg cag ggc gag atc gcc acc atc ctt gct gga gac atc	1728
Trp Ala Phe Met Gln Gly Glu Ile Ala Thr Ile Leu Ala Gly Asp Ile	
561 566 571 576	
aaa gtt aag aaa gaa cgg gac ccc tag gctac cactgacctcc aggtactgc	1780
Lys Val Lys Lys Glu Arg Asp Pro *	
577 582	
cctctgcccc tttgccaccc accgctgcgg cggataaatt attccctccc cgaccagcc	1840
cagtgccacc tctatctgtg tacatactcc cttcttccac ccagatgggt cccctgggggt	1900
agatgcattg tgggtggggg gagaaagctt gtggctcctg tccgaggggg tgtttgggggt	1960
cccttgcccc ctccagtttc cctctgtcct ccttggtctg gctttgctgc tgctttagt	2020
tgggggagag gtgccccct cctccttgag aaggacctc ctgaaaactc gctctttata	2080
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tcgaaggaaa cacaaattca tccagtgtta caaattctgc agcaggtggt gaagatctta	120
acatcgttca agtgactggt ccagataatg agaaggaaag attatcaagc attgaaaaga	180
ttaaacagct aagagaacaa gttaatgacc tctttagccg aaaatttggt gaagcaattg	240
gcgtggattt ccctgtgaaa gttccctaca ggaagatcac attcaaccct ggctgtgtgg	300
tgattgatgg c atg ccc ccg ggg gtg gta ttc aag gcc ccc ggc tat ctg	350
Met Pro Pro Gly Val Val Phe Lys Ala Pro Gly Tyr Leu	
1 5 10	
gaa atc agt tcc atg agg agg atc ttg gag gca gct gag ttt atc aaa	398
Glu Ile Ser Ser Met Arg Arg Ile Leu Glu Ala Ala Glu Phe Ile Lys	
14 19 24 29	
ttc aca gtc atc agg ccg ctt cca ggg ctt gag ctc agt aat ggt gag	446
Phe Thr Val Ile Arg Pro Leu Pro Gly Leu Glu Leu Ser Asn Gly Glu	
30 35 40 45	
tat tct aca gtg gga aaa cgc aag ata gac cag gag ggc cgt gtg ttt	494
Tyr Ser Thr Val Gly Lys Arg Lys Ile Asp Gln Glu Gly Arg Val Phe	
46 51 56 61	
caa gaa aag tgg gag aga gcg tat ttc ttc gtg gaa gta cag aat att	542
Gln Glu Lys Trp Glu Arg Ala Tyr Phe Phe Val Glu Val Gln Asn Ile	
62 67 72 77	
cca aca tgt ctc ata tgc aaa caa agc atg tct gtg tcc aaa gaa tat	590
Pro Thr Cys Leu Ile Cys Lys Gln Ser Met Ser Val Ser Lys Glu Tyr	
78 83 88 93	
aac cta aga cgc cac tat caa acc aat cac agc aag cat tat gac cag	638
Asn Leu Arg Arg His Tyr Gln Thr Asn His Ser Lys His Tyr Asp Gln	
94 99 104 109	
tat atg gaa aga atg cgt gac gag aag ctt cac gag ctg aaa aaa ggg	686
Tyr Met Glu Arg Met Arg Asp Glu Lys Leu His Glu Leu Lys Lys Gly	
110 115 120 125	
ctc agg aag tat ctc tta ggc tgc tca gac acc gag tgt ccc gag caa	734
Leu Arg Lys Tyr Leu Leu Gly Ser Ser Asp Thr Glu Cys Pro Glu Gln	
126 131 136 141	
aaa caa gtg ttt gca aac cca agt cca acc cag aaa tcc ccc gtg cag	782
Lys Gln Val Phe Ala Asn Pro Ser Pro Thr Gln Lys Ser Pro Val Gln	
142 147 152 157	
cct gta gag gac cta gct ggg aac tta tgg gag aag tta cgt gaa aaa	830
Pro Val Glu Asp Leu Ala Gly Asn Leu Trp Glu Lys Leu Arg Glu Lys	
158 163 168 173	
atc agg tct ttt gtg gca tat tct atc gca atc gat gag atc acg gat	878
Ile Arg Ser Phe Val Ala Tyr Ser Ile Ala Ile Asp Glu Ile Thr Asp	
174 179 184 189	
ata aat aat acc acc cag ttg gcc ata ttc atc cgt ggt gtc gat gag	926

Ile	Asn	Asn	Thr	Thr	Gln	Leu	Ala	Ile	Phe	Ile	Arg	Gly	Val	Asp	Glu	
190					195					200					205	
aat	ttc	gat	gtg	tcc	gaa	gaa	ctt	ctg	gac	acg	gtg	ccc	atg	acg	ggg	974
Asn	Phe	Asp	Val	Ser	Glu	Glu	Leu	Leu	Asp	Thr	Val	Pro	Met	Thr	Gly	
206					211				216						221	
aca	aaa	tct	ggc	aac	gag	atc	ttt	tcg	cgt	gtt	gag	aag	agc	ctg	aaa	1022
Thr	Lys	Ser	Gly	Asn	Glu	Ile	Phe	Ser	Arg	Val	Glu	Lys	Ser	Leu	Lys	
222					227				232						237	
aag	ttc	tgt	atc	gac	tgg	tcg	aaa	tta	gta	agc	gtg	gcc	tcc	act	ggc	1070
Lys	Phe	Cys	Ile	Asp	Trp	Ser	Lys	Leu	Val	Ser	Val	Ala	Ser	Thr	Gly	
238					243				248						253	
acc	cca	gcg	atg	gtg	gat	gcc	aat	aac	ggg	ctt	gtc	aca	aaa	ctg	aag	1118
Thr	Pro	Ala	Met	Val	Asp	Ala	Asn	Asn	Gly	Leu	Val	Thr	Lys	Leu	Lys	
254					259				264						269	
tcc	agg	gtg	gcg	acg	ttc	tgc	aag	ggg	gcg	gaa	ctg	aag	tcc	atc	tgt	1166
Ser	Arg	Val	Ala	Thr	Phe	Cys	Lys	Gly	Ala	Glu	Leu	Lys	Ser	Ile	Cys	
270					275				280						285	
tgt	ata	att	cat	ccg	gaa	tca	ctc	tgt	gct	cag	aag	ttg	aag	atg	gac	1214
Cys	Ile	Ile	His	Pro	Glu	Ser	Leu	Cys	Ala	Gln	Lys	Leu	Lys	Met	Asp	
286					291				296						301	
cac	gtc	atg	gac	gtg	gta	gtg	aag	tcc	gtg	aac	tgg	ata	tgc	tcc	cgg	1262
His	Val	Met	Asp	Val	Val	Val	Lys	Ser	Val	Asn	Trp	Ile	Cys	Ser	Arg	
302					307				312						317	
gga	ctg	aac	cac	agc	gag	ttc	aca	acc	ttg	ctc	tat	gag	ctg	gac	agc	1310
Gly	Leu	Asn	His	Ser	Glu	Phe	Thr	Thr	Leu	Leu	Tyr	Glu	Leu	Asp	Ser	
318					323				328						333	
cag	tat	ggg	agc	ctc	ctg	tac	tac	acg	gag	att	aag	tgg	ctc	agt	cgc	1358
Gln	Tyr	Gly	Ser	Leu	Leu	Tyr	Tyr	Thr	Glu	Ile	Lys	Trp	Leu	Ser	Arg	
334					339				344						349	
ggg	ctc	gtg	cta	aag	aga	ttt	ttc	gaa	tcc	ttg	gaa	gaa	atc	gac	tcc	1406
Gly	Leu	Val	Leu	Lys	Arg	Phe	Phe	Glu	Ser	Leu	Glu	Glu	Ile	Asp	Ser	
350					355				360						365	
ttc	atg	tca	tcc	aga	ggg	aaa	ccc	ctg	cct	caa	ctg	agc	tcc	ata	gat	1454
Phe	Met	Ser	Ser	Arg	Gly	Lys	Pro	Leu	Pro	Gln	Leu	Ser	Ser	Ile	Asp	
366					371				376						381	
tgg	atc	cga	gac	ctg	gcc	ttc	ttg	gtt	gac	atg	acg	atg	cat	ctg	aac	1502
Trp	Ile	Arg	Asp	Leu	Ala	Phe	Leu	Val	Asp	Met	Thr	Met	His	Leu	Asn	
382					387				392						397	
gct	ttg	aac	atc	tct	ctc	caa	gga	cac	tcc	caa	atc	gtc	acg	cag	atg	1550
Ala	Leu	Asn	Ile	Ser	Leu	Gln	Gly	His	Ser	Gln	Ile	Val	Thr	Gln	Met	
398					403				408						413	
tat	gac	ctg	atc	cgg	gcg	ttc	cta	gca	aaa	ctg	tgc	ctc	tgg	gag	act	1598
Tyr	Asp	Leu	Ile	Arg	Ala	Phe	Leu	Ala	Lys	Leu	Cys	Leu	Trp	Glu	Thr	

tcaagaaagt tttattgtaa aaaaaaaaaa

2591

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<212> DNA
<213> Homo sapiens

<220>
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<222> (12) .. (1097)

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Met Ala Gly Gly Arg His Arg Arg Val Val Gly Thr Leu
1 5 10

cac ctg ctg ctg ctg gtg gcc gcc ctg ccc tgg gca tcc agg ggg gtc 98
His Leu Leu Leu Leu Val Ala Ala Leu Pro Trp Ala Ser Arg Gly Val
14 19 24 29

agt ccg agt gcc tca gcc tgg cca gag gag aag aat tac cac cag cca 146
Ser Pro Ser Ala Ser Ala Trp Pro Glu Glu Lys Asn Tyr His Gln Pro
30 35 40 45

gcc att ttg aat tca tgc gct ctt cgg caa att gca gaa ggc acc agt 194
Ala Ile Leu Asn Ser Ser Ala Leu Arg Gln Ile Ala Glu Gly Thr Ser
46 51 56 61

atc tct gaa atg tgg caa aat gac tta cag cca ttg ctg ata gag cga 242
Ile Ser Glu Met Trp Gln Asn Asp Leu Gln Pro Leu Leu Ile Glu Arg
62 67 72 77

tac ccg gga tcc cct gga agc tat gct gct cgt cag cac atc atg cag 290
Tyr Pro Gly Ser Pro Gly Ser Tyr Ala Ala Arg Gln His Ile Met Gln
78 83 88 93

cga att cag agg ctt cag gct gac tgg gtc ttg gaa ata gac acc ttc 338
Arg Ile Gln Arg Leu Gln Ala Asp Trp Val Leu Glu Ile Asp Thr Phe
94 99 104 109

ttg agt cag aca ccc tat ggg tac cgg tct ttc tca aat atc atc agc 386
Leu Ser Gln Thr Pro Tyr Gly Tyr Arg Ser Phe Ser Asn Ile Ile Ser
110 115 120 125

acc ctc aat ccc act gct aaa cga cat ttg gtc ctc gcc tgc cac tat 434
Thr Leu Asn Pro Thr Ala Lys Arg His Leu Val Leu Ala Cys His Tyr
126 131 136 141

gac tcc aag tat ttt tcc cac tgg aac aac aga gtg ttt gta gga gcc 482
Asp Ser Lys Tyr Phe Ser His Trp Asn Asn Arg Val Phe Val Gly Ala
142 147 152 157

act gat tca gcc gtg cca tgt gca atg atg ttg gaa ctt gct cgt gcc 530

Thr Asp Ser Ala Val	Pro Cys Ala Met Met	Leu Glu Leu Ala Arg Ala	
158	163	168	173
tta gac aag aaa ctc	ctt tcc tta aag act	gtt tca gac tcc aag cca	578
Leu Asp Lys Lys Leu	Leu Ser Leu Lys Thr	Val Ser Asp Ser Lys Pro	
174	179	184	189
gat ttg tca ctc cag	ctg atc ttc ttt gat	ggt gaa gag gct ttt ctt	626
Asp Leu Ser Leu Gln	Leu Ile Phe Phe Asp	Gly Glu Glu Ala Phe Leu	
190	195	200	205
cac tgg tct cct caa	gat tct ctc tat ggg	tct cga cac tta gct gca	674
His Trp Ser Pro Gln	Asp Ser Leu Tyr Gly	Ser Arg His Leu Ala Ala	
206	211	216	221
aag atg gca tcg acc	ccg cac cca cct gga	gcg aga ggc acc agc caa	722
Lys Met Ala Ser Thr	Pro His Pro Pro Gly	Ala Arg Gly Thr Ser Gln	
222	227	232	237
ctg cat ggc atg gat	tta ttg gtc tta ttg	gat ttg att gga gct cca	770
Leu His Gly Met Asp	Leu Leu Val Leu Leu	Asp Leu Ile Gly Ala Pro	
238	243	248	253
aac cca acg ttt ccc	aat ttt ttt cca aac	tca gcc agg tgg ttc gaa	818
Asn Pro Thr Phe Pro	Asn Phe Phe Pro Asn	Ser Ala Arg Trp Phe Glu	
254	259	264	269
aga ctt caa gca att	gaa cat gaa ctt cat	gaa ttg ggt ttg ctc aag	866
Arg Leu Gln Ala Ile	Glu His Glu Leu His	Glu Leu Gly Leu Leu Lys	
270	275	280	285
gat cac tct ttg gag	ggg cgg tat ttc cag	aat tac agt tat gga ggt	914
Asp His Ser Leu Glu	Gly Arg Tyr Phe Gln	Asn Tyr Ser Tyr Gly Gly	
286	291	296	301
gtg att cag gat gac	cat att cca ttt tta	aga aga ggt gtt cca gtt	962
Val Ile Gln Asp Asp	His Ile Pro Phe Leu	Arg Arg Gly Val Pro Val	
302	307	312	317
ctg cat ctg ata ccg	tct cct ttc cct gaa	gtc tgg cac acc atg gat	1010
Leu His Leu Ile Pro	Ser Pro Phe Pro Glu	Val Trp His Thr Met Asp	
318	323	328	333
gac aat gaa gaa aat	ttg gat gaa tca acc	att gac aat cta aac aaa	1058
Asp Asn Glu Glu Asn	Leu Asp Glu Ser Thr	Ile Asp Asn Leu Asn Lys	
334	339	344	349
atc cta caa gtc ttt	gtg ttg gaa tat ctt	cat ttg taa tactctgatt	1107
Ile Leu Gln Val Phe	Val Leu Glu Tyr Leu	His Leu *	
350	355	360	
tagtttagga taattggttc	tagaattgaa ttcaaaagtc	aaggcatcat ttaaaataat	1167
ctgatttcag acaaagtctg	tgtggaacaa tctatcctat	agatcatcct attcttatgt	1227
gtcttttggtt atcagatcaa	ttacagaata attgtgttgt	gatatttgtgt cctaaattgc	1287

tcattaattt ttatttacag attgaaaaag aggcaccgtg taaagaaaat ggcaaaaataa 1347
 atatctttcc aaggatcatc atcacgatag ctaaacagta cttaaatagc ggttggaaact 1407
 aggtagcctt tcgaatttta tgattttttc atatgtggaa atctattaca tgtaatacaa 1467
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 tatggaaatt aaaatcagaa ttaaattgct 1556

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 <222> (12)..(950)

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 Met Ala Gly Gly Arg His Arg Arg Val Val Gly Thr Leu
 1 5 10
 cac ctg ctg ctg ctg gtg gcc gcc ctg ccc tgg gca tcc agg ggg gtc 98
 His Leu Leu Leu Leu Val Ala Ala Leu Pro Trp Ala Ser Arg Gly Val
 14 19 24 29
 agt ccg agt gcc tca gcc tgg cca gag gag aag cac atc atg cag cga 146
 Ser Pro Ser Ala Ser Ala Trp Pro Glu Glu Lys His Ile Met Gln Arg
 30 35 40 45
 att cag agg ctt cag gct gac tgg gtc ttg gaa ata gac acc ttc ttg 194
 Ile Gln Arg Leu Gln Ala Asp Trp Val Leu Glu Ile Asp Thr Phe Leu
 46 51 56 61
 agt cag aca ccc tat ggg tac cgg tct ttc tca aat atc atc agc acc 242
 Ser Gln Thr Pro Tyr Gly Tyr Arg Ser Phe Ser Asn Ile Ile Ser Thr
 62 67 72 77
 ctc aat ccc act gct aaa cga cat ttg gtc ctc gcc tgc cac tat gac 290
 Leu Asn Pro Thr Ala Lys Arg His Leu Val Leu Ala Cys His Tyr Asp
 78 83 88 93
 tcc aag tat ttt tcc cac tgg aac aac aga gtg ttt gta gga gcc act 338
 Ser Lys Tyr Phe Ser His Trp Asn Asn Arg Val Phe Val Gly Ala Thr
 94 99 104 109
 gat tca gcc gtg cca tgt gca atg atg ttg gaa ctt gct cgt gcc tta 386
 Asp Ser Ala Val Pro Cys Ala Met Met Leu Glu Leu Ala Arg Ala Leu
 110 115 120 125
 gac aag aaa ctc ctt tcc tta aag act gtt tca gac tcc aag cca gat 434
 Asp Lys Lys Leu Leu Ser Leu Lys Thr Val Ser Asp Ser Lys Pro Asp

126	131	136	141	
ttg tca ctc cag ctg	atc ttc ttt gat ggt	gaa gag gct ttt ctt cac		482
Leu Ser Leu Gln Leu	Ile Phe Phe Asp Gly	Glu Glu Ala Phe Leu His		
142	147	152	157	
tgg tct cct caa gat	tct ctc tat ggg tct	cga cac tta gct gca aag		530
Trp Ser Pro Gln Asp	Ser Leu Tyr Gly Ser	Arg His Leu Ala Ala Lys		
158	163	168	173	
atg gca tcg acc ccg	cac cca cct gga gcg	aga ggc acc agc caa ctg		578
Met Ala Ser Thr Pro	His Pro Pro Gly Ala	Arg Gly Thr Ser Gln Leu		
174	179	184	189	
cat ggc atg gat tta	ttg gtc tta ttg gat	ttg att gga gct cca aac		626
His Gly Met Asp Leu	Leu Val Leu Leu Asp	Leu Ile Gly Ala Pro Asn		
190	195	200	205	
cca acg ttt ccc aat	ttt ttt cca aac tca	gcc agg tgg ttc gaa aga		674
Pro Thr Phe Pro Asn	Phe Phe Pro Asn Ser	Ala Arg Trp Phe Glu Arg		
206	211	216	221	
ctt caa gca att gaa	cat gaa ctt cat gaa	ttg ggt ttg ctc aag gat		722
Leu Gln Ala Ile Glu	His Glu Leu His Glu	Leu Gly Leu Leu Lys Asp		
222	227	232	237	
cac tct ttg gag ggg	cgg tat ttc cag aat	tac agt tat gga ggt gtg		770
His Ser Leu Glu Gly	Arg Tyr Phe Gln Asn	Tyr Ser Tyr Gly Gly Val		
238	243	248	253	
att cag gat gac cat	att cca ttt tta aga	aga ggt gtt cca gtt ctg		818
Ile Gln Asp Asp His	Ile Pro Phe Leu Arg	Arg Gly Val Pro Val Leu		
254	259	264	269	
cat ctg ata ccg tct	cct ttc cct gaa gtc	tgg cac acc atg gat gac		866
His Leu Ile Pro Ser	Pro Phe Pro Glu Val	Trp His Thr Met Asp Asp		
270	275	280	285	
aat gaa gaa aat ttg	gat gaa tca acc att	gac aat cta aac aaa atc		914
Asn Glu Glu Asn Leu	Asp Glu Ser Thr Ile	Asp Asn Leu Asn Lys Ile		
286	291	296	301	
cta caa gtc ttt gtg	ttg gaa tat ctt cat	ttg taa tact ctgatttagt		964
Leu Gln Val Phe Val	Leu Glu Tyr Leu His	Leu *		
302	307	312		
ttaggataat tgggttctaga	attgaattca aaagtcaagg	catcatttaa aataatctga		1024
tttcagacaa atgctgtgtg	gaaacatcta tcctatagat	catcctattc ttatgtgtct		1084
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agcctttcga attttatgat	tttttcatat gtggaaatct	attacatgta atacaaaaca		1324

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acc atg tcg agc aaa aga aca aag acc aag acc aag aag cgc cct cag 168
Met Ser Ser Lys Arg Thr Lys Thr Lys Thr Lys Lys Arg Pro Gln
1 5 10

cgt gca aca tcc aat gtg ttt gct atg ttt gac cag tca cag att cag 216
Arg Ala Thr Ser Asn Val Phe Ala Met Phe Asp Gln Ser Gln Ile Gln
16 21 26 31

gag ttc aaa gag gcc ttc aac atg att gat cag aac aga gat ggt ttc 264
Glu Phe Lys Glu Ala Phe Asn Met Ile Asp Gln Asn Arg Asp Gly Phe
32 37 42 47

atc gac aag gaa gat ttg cat gat atg ctt gct tca ttg ggg aag aat 312
Ile Asp Lys Glu Asp Leu His Asp Met Leu Ala Ser Leu Gly Lys Asn
48 53 58 63

cca act gat gag tat cta gat gcc atg atg aat gag gct cca ggc ccc 360
Pro Thr Asp Glu Tyr Leu Asp Ala Met Met Asn Glu Ala Pro Gly Pro
64 69 74 79

atc aat ttc acc atg ttc ctc acc atg ttt ggt gag aag tta aat ggc 408
Ile Asn Phe Thr Met Phe Leu Thr Met Phe Gly Glu Lys Leu Asn Gly
80 85 90 95

aca gat cct gaa gat gtc atc aga aat gcc ttt gct tgc ttt gat gaa 456
Thr Asp Pro Glu Asp Val Ile Arg Asn Ala Phe Ala Cys Phe Asp Glu
96 101 106 111

gaa gca act ggc acc ata cag gaa gat tac ttg aga gag ctg ctg aca 504
Glu Ala Thr Gly Thr Ile Gln Glu Asp Tyr Leu Arg Glu Leu Leu Thr
112 117 122 127

acc atg ggg gat cgg ttt aca gat gag gaa gtg gat gag ctg tac aga 552
Thr Met Gly Asp Arg Phe Thr Asp Glu Glu Val Asp Glu Leu Tyr Arg
128 133 138 143

gaa gca cct att gat aaa aag ggg aat ttc aat tac atc gag ttc aca	600
Glu Ala Pro Ile Asp Lys Lys Gly Asn Phe Asn Tyr Ile Glu Phe Thr	
144 149 154 159	
cgc atc ctg aaa cat gga gcc aaa gac aaa gat gac tga aataacttca	649
Arg Ile Leu Lys His Gly Ala Lys Asp Lys Asp *	
160 165 170	
aattccagcc aaacgttccct tgttgccact ttgggtattc tgagattttc ttttgcattgc	709
ccttagcttt acagcttttg catttcctgt tgtattttatt ctcagccatt ttggggcatat	769
gtatctttat aatcagactg gaaacgggac tttctattaa tatcattttc agaataaaaa	829
atagggtaat ttaacctacc agcccttctc cccaataac tgtgggtctat acagagtcaa	889
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Leu Ser Thr Tyr Arg Leu Gln Ser Arg Ser Arg Pro Ser Ala Pro Glu	
17 22 27 32	
acc gat gat agt cga gtt ggg ggc att atg aga gga gag aaa aac tac	144
Thr Asp Asp Ser Arg Val Gly Gly Ile Met Arg Gly Glu Lys Asn Tyr	
33 38 43 48	
tac ttc cgt gga gct gcg ggg gac cac ggt tcc tgc ccc act aca act	192
Tyr Phe Arg Gly Ala Ala Gly Asp His Gly Ser Cys Pro Thr Thr Thr	
49 54 59 64	
tcg cct ctg gcc tcg gcc ctc ttg atg ccc tcg gag gca gtc tca agc	240
Ser Pro Leu Ala Ser Ala Leu Leu Met Pro Ser Glu Ala Val Ser Ser	
65 70 75 80	
agc tgg tct gag tct gga ggc ggt ttg tca ggg gga gat gaa gag gac	288
Ser Trp Ser Glu Ser Gly Gly Gly Leu Ser Gly Gly Asp Glu Glu Asp	
81 86 91 96	

act	egg	ctc	ctt	caa	ctc	ctc	cgc	act	gcc	cgg	gat	cct	tct	gag	gcc	336
Thr	Arg	Leu	Leu	Gln	Leu	Leu	Arg	Thr	Ala	Arg	Asp	Pro	Ser	Glu	Ala	
97					102				107					112		
ttc	cag	gct	ttg	caa	gct	gct	ttg	cgg	cgg	cgg	ggc	ggt	cga	ctt	ggc	384
Phe	Gln	Ala	Leu	Gln	Ala	Ala	Leu	Pro	Arg	Arg	Gly	Gly	Arg	Leu	Gly	
113					118				123					128		
ttc	ccc	cga	cgc	aag	gaa	gct	ttg	tat	cgg	gca	ctg	ggc	cga	gtg	ctt	432
Phe	Pro	Arg	Arg	Lys	Glu	Ala	Leu	Tyr	Arg	Ala	Leu	Gly	Arg	Val	Leu	
129					134				139					144		
gtg	gaa	gga	ggt	agt	gat	gag	aag	cgg	ctc	tgc	ttg	caa	ctt	ctc	tgc	480
Val	Glu	Gly	Gly	Ser	Asp	Glu	Lys	Arg	Leu	Cys	Leu	Gln	Leu	Leu	Ser	
145					150				155					160		
gac	gtt	ctc	cgg	ggt	cag	ggg	gag	gca	ggc	cag	ctt	gaa	gag	gcc	ttt	528
Asp	Val	Leu	Arg	Gly	Gln	Gly	Glu	Ala	Gly	Gln	Leu	Glu	Glu	Ala	Phe	
161					166				171					176		
agc	tta	gca	ctt	ttg	cct	caa	cta	gtt	gtc	tgc	tta	cgg	gaa	gag	aat	576
Ser	Leu	Ala	Leu	Leu	Pro	Gln	Leu	Val	Val	Ser	Leu	Arg	Glu	Glu	Asn	
177					182				187					192		
cca	gcc	ctg	cgg	aaa	gat	gcg	ctg	cag	atc	ctt	cat	ata	tgt	ctg	aaa	624
Pro	Ala	Leu	Arg	Lys	Asp	Ala	Leu	Gln	Ile	Leu	His	Ile	Cys	Leu	Lys	
193					198				203					208		
cgt	agt	cct	gga	gag	gtg	ctg	aga	acg	ctt	ata	caa	caa	gga	ctg	gaa	672
Arg	Ser	Pro	Gly	Glu	Val	Leu	Arg	Thr	Leu	Ile	Gln	Gln	Gly	Leu	Glu	
209					214				219					224		
agt	acc	gat	gcc	cga	ctt	aga	gct	tcc	aca	gca	cta	ctg	ctt	ccc	atc	720
Ser	Thr	Asp	Ala	Arg	Leu	Arg	Ala	Ser	Thr	Ala	Leu	Leu	Leu	Pro	Ile	
225					230				235					240		
ttg	ctt	act	act	gag	gac	ttg	ttg	ctt	ggt	ctg	gat	ctc	acc	gag	gtg	768
Leu	Leu	Thr	Thr	Glu	Asp	Leu	Leu	Leu	Gly	Leu	Asp	Leu	Thr	Glu	Val	
241					246				251					256		
ata	ata	tcc	cta	gcc	cga	aag	ctt	ggt	gat	cag	gag	aca	gaa	gaa	gaa	816
Ile	Ile	Ser	Leu	Ala	Arg	Lys	Leu	Gly	Asp	Gln	Glu	Thr	Glu	Glu	Glu	
257					262				267					272		
tct	gag	aca	gct	ttc	tcc	gca	ctt	caa	caa	att	ggg	gag	cga	ctt	ggc	864
Ser	Glu	Thr	Ala	Phe	Ser	Ala	Leu	Gln	Gln	Ile	Gly	Glu	Arg	Leu	Gly	
273					278				283					288		
caa	gac	agg	ttt	caa	tct	tac	att	tct	cgt	ctg	ccc	tct	gcc	ctg	agg	912
Gln	Asp	Arg	Phe	Gln	Ser	Tyr	Ile	Ser	Arg	Leu	Pro	Ser	Ala	Leu	Arg	
289					294				299					304		
aga	cac	tac	aat	cgc	cgc	ctg	gag	tcc	cag	ttt	gga	agt	cag	gtt	cct	960
Arg	His	Tyr	Asn	Arg	Arg	Leu	Glu	Ser	Gln	Phe	Gly	Ser	Gln	Val	Pro	
305					310				315					320		

tat tat ttg gaa ctt gaa gcc tct gga ttt cct gaa gat ccc ctt ccc	1008
Tyr Tyr Leu Glu Leu Glu Ala Ser Gly Phe Pro Glu Asp Pro Leu Pro	
321 326 331 336	
tgt gca gtg act ctt tcc aac agc aat ctt aaa ttt ggg att att cct	1056
Cys Ala Val Thr Leu Ser Asn Ser Asn Leu Lys Phe Gly Ile Ile Pro	
337 342 347 352	
cag gag ctg cat tca cga tta ttg gat cag gaa gac tat aag aac cgg	1104
Gln Glu Leu His Ser Arg Leu Leu Asp Gln Glu Asp Tyr Lys Asn Arg	
353 358 363 368	
acc cag gcc gtc gaa gaa cta aag cag gtg ctg gga aaa ttt aac cct	1152
Thr Gln Ala Val Glu Glu Leu Lys Gln Val Leu Gly Lys Phe Asn Pro	
369 374 379 384	
agt tct act cct cat tct agt ctt gtt ggc ttc att agt ttg cta tat	1200
Ser Ser Thr Pro His Ser Ser Leu Val Gly Phe Ile Ser Leu Leu Tyr	
385 390 395 400	
aat ttg tta gac gat tct aac ttc aaa gtg gtg cat ggc aca ctt gaa	1248
Asn Leu Leu Asp Asp Ser Asn Phe Lys Val Val His Gly Thr Leu Glu	
401 406 411 416	
gtc ctg cat tta ctg gtt att cgc ctt gga gag cag gta cag cag ttc	1296
Val Leu His Leu Leu Val Ile Arg Leu Gly Glu Gln Val Gln Gln Phe	
417 422 427 432	
ttg gga cca gtt ata gca gct tct gtc aaa gtg ctg gcg gac aac aag	1344
Leu Gly Pro Val Ile Ala Ala Ser Val Lys Val Leu Ala Asp Asn Lys	
433 438 443 448	
ttg gtg atc aaa caa gaa tac atg aaa atc ttc ctc aag cta atg aag	1392
Leu Val Ile Lys Gln Glu Tyr Met Lys Ile Phe Leu Lys Leu Met Lys	
449 454 459 464	
gaa gta gga cct cag cag gtg ctt tgt tta ctc ctg gaa cat ctc aaa	1440
Glu Val Gly Pro Gln Gln Val Leu Cys Leu Leu Leu Glu His Leu Lys	
465 470 475 480	
cat aag cat tcc aga gtg aga gag gag gtg gtg aac att tgc atc tgc	1488
His Lys His Ser Arg Val Arg Glu Glu Val Val Asn Ile Cys Ile Cys	
481 486 491 496	
tcc ctg ctg acc tat cct agt gag gat ttt gac ttg ccc aaa ctg tcc	1536
Ser Leu Leu Thr Tyr Pro Ser Glu Asp Phe Asp Leu Pro Lys Leu Ser	
497 502 507 512	
ttt gat ctt gcc cca gct ctt gta gat agc aaa cgc agg gta cgc caa	1584
Phe Asp Leu Ala Pro Ala Leu Val Asp Ser Lys Arg Arg Val Arg Gln	
513 518 523 528	
gca gct tta gaa gct ttt gcc gta ttg gca tca tca atg ggc tca ggt	1632
Ala Ala Leu Glu Ala Phe Ala Val Leu Ala Ser Ser Met Gly Ser Gly	
529 534 539 544	
aaa acc agc atc ctt ttt aaa gct gtg gat aca gtt gaa ctg caa gat	1680

Lys Thr Ser Ile Leu Phe Lys Ala Val Asp Thr Val Glu Leu Gln Asp	
545 550 555 560	
aat gga gat gga gtg atg aat gct gtg cag gcc aga ttg gct agg aaa	1728
Asn Gly Asp Gly Val Met Asn Ala Val Gln Ala Arg Leu Ala Arg Lys	
561 566 571 576	
acc tta cca agg ctc aca gag cag gga ttt gtg gaa tat gca gta ctg	1776
Thr Leu Pro Arg Leu Thr Glu Gln Gly Phe Val Glu Tyr Ala Val Leu	
577 582 587 592	
atg cca tct tct gcc ggg ggt agg tca aac cat ttg gca cat gga gca	1824
Met Pro Ser Ser Ala Gly Gly Arg Ser Asn His Leu Ala His Gly Ala	
593 598 603 608	
gat acg gac tgg ctt ttg gct ggt aac aga act cag agt gca cac tgt	1872
Asp Thr Asp Trp Leu Leu Ala Gly Asn Arg Thr Gln Ser Ala His Cys	
609 614 619 624	
cac tgt ggt gac cac gtg agg gat agc atg cac att tat gga tct tac	1920
His Cys Gly Asp His Val Arg Asp Ser Met His Ile Tyr Gly Ser Tyr	
625 630 635 640	
agc cca act atc tgt acc cga agg gta tta agt gca gga aaa gga aaa	1968
Ser Pro Thr Ile Cys Thr Arg Arg Val Leu Ser Ala Gly Lys Gly Lys	
641 646 651 656	
aat aaa tta cca tgg gaa aat gag caa cct gga atc atg gga gaa aac	2016
Asn Lys Leu Pro Trp Glu Asn Glu Gln Pro Gly Ile Met Gly Glu Asn	
657 662 667 672	
cag acc tcc act tcc aag gat ata gag cag ttt tca aca tat gat ttc	2064
Gln Thr Ser Thr Ser Lys Asp Ile Glu Gln Phe Ser Thr Tyr Asp Phe	
673 678 683 688	
atc cca tct gca aaa tta aag ctt tct caa gga atg cca gtc aat gat	2112
Ile Pro Ser Ala Lys Leu Lys Leu Ser Gln Gly Met Pro Val Asn Asp	
689 694 699 704	
gat tta tgt ttt agc aga aaa aga gta tca aga aac tta ttt cag aat	2160
Asp Leu Cys Phe Ser Arg Lys Arg Val Ser Arg Asn Leu Phe Gln Asn	
705 710 715 720	
agt cgg gat ttt aac cca gat tgt ctt cct tta tgt gct gct ggt act	2208
Ser Arg Asp Phe Asn Pro Asp Cys Leu Pro Leu Cys Ala Ala Gly Thr	
721 726 731 736	
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Thr Gly Thr His Gln Thr Asn Leu Ser Gly Lys Cys Ala Gln Leu Gly	
737 742 747 752	
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Phe Ser Gln Ile Cys Gly Lys Thr Gly Ser Val Gly Ser Asp Leu Gln	
753 758 763 768	
ttc cta ggg aca act agc agt cat caa gaa aaa gtg tat gct agc ctc	2352
Phe Leu Gly Thr Thr Ser Ser His Gln Glu Lys Val Tyr Ala Ser Leu	

769	774	779	784	
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785	790	795	800	
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Thr Ser Ser Asn Gly Gln Asn Pro Ser Pro Gly Ala Tyr Ile Leu Pro				
801	806	811	816	
tcc tat cct gtc tca tca cct cga act agt cca aag cat aca tct cct				2496
Ser Tyr Pro Val Ser Ser Pro Arg Thr Ser Pro Lys His Thr Ser Pro				
817	822	827	832	
ctt att ata tct cca aag aag tct caa gat aat tct gtt aat ttc tca				2544
Leu Ile Ile Ser Pro Lys Lys Ser Gln Asp Asn Ser Val Asn Phe Ser				
833	838	843	848	
aat tcc tgg cct ctt aaa agc ttc gaa gga cta tca aag cca agt cca				2592
Asn Ser Trp Pro Leu Lys Ser Phe Glu Gly Leu Ser Lys Pro Ser Pro				
849	854	859	864	
cag aag aag ctt gtc agc caa aaa tcg tct gat cct acg ggt aga aat				2640
Gln Lys Lys Leu Val Ser Gln Lys Ser Ser Asp Pro Thr Gly Arg Asn				
865	870	875	880	
cat gga gaa aat tct caa gaa aaa cct cca gtt cag ctt aca cct gcc				2688
His Gly Glu Asn Ser Gln Glu Lys Pro Pro Val Gln Leu Thr Pro Ala				
881	886	891	896	
ttg gtg aga tcg cca tct tcc cga cga ggt cta aat ggg aca aag cct				2736
Leu Val Arg Ser Pro Ser Ser Arg Arg Gly Leu Asn Gly Thr Lys Pro				
897	902	907	912	
gtt cct ccc ata cca agg gga ata agc ctt ttg cct gat aaa gct gat				2784
Val Pro Pro Ile Pro Arg Gly Ile Ser Leu Leu Pro Asp Lys Ala Asp				
913	918	923	928	
tta agc aca gtg gga cac aaa aag aaa gag cct gat gat att tgg aag				2832
Leu Ser Thr Val Gly His Lys Lys Lys Glu Pro Asp Asp Ile Trp Lys				
929	934	939	944	
tgt gaa aaa gat agt ctt cca att gat ctt tca gaa tta aat ttc aag				2880
Cys Glu Lys Asp Ser Leu Pro Ile Asp Leu Ser Glu Leu Asn Phe Lys				
945	950	955	960	
gat aaa gat ttg gat caa gaa gag atg cat agc tct ctt agg tcc ctt				2928
Asp Lys Asp Leu Asp Gln Glu Glu Met His Ser Ser Leu Arg Ser Leu				
961	966	971	976	
cgt aat agt gca gct aag aaa aga gca aaa ctg agt ggc agt act tca				2976
Arg Asn Ser Ala Ala Lys Lys Arg Ala Lys Leu Ser Gly Ser Thr Ser				
977	982	987	992	
gat ctt gaa agc cct gat tct gca atg aag ctc gac ttg acg atg gac				3024
Asp Leu Glu Ser Pro Asp Ser Ala Met Lys Leu Asp Leu Thr Met Asp				
993	998	1003	1008	

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Ser Pro Ser Leu Ser Ser Ser Pro Asn Ile Asn Ser Tyr Ser Glu Ser	
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Gly Val Tyr Ser Gln Glu Ser Leu Thr Ser Ser Leu Ser Thr Thr Pro	
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Gln Gly Lys Arg Ile Met Ser Asp Ile Phe Pro Thr Phe Gly Ser Lys	
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cct tgt cca aca aga ctt tct tct gca aag aaa aaa att tct cat att	3216
Pro Cys Pro Thr Arg Leu Ser Ser Ala Lys Lys Lys Ile Ser His Ile	
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Ala Glu Gln Ser Pro Ser Ala Gly Ser Ser Ser Asn Pro Gln Gln Ile	
1073 1078 1083 1088	
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Ser Ser Phe Asp Phe Thr Thr Thr Lys Ala Leu Ser Glu Asp Ser Val	
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Val Val Val Gly Lys Gly Val Phe Gly Ser Leu Ser Ser Ala Pro Ala	
1105 1110 1115 1120	
acc tgc agc caa tca gtg ata tct tct gtg gaa aat ggg gat aca ttt	3408
Thr Cys Ser Gln Ser Val Ile Ser Ser Val Glu Asn Gly Asp Thr Phe	
1121 1126 1131 1136	
tca att aaa caa agt att gaa cca cca tca ggg att tat gga aga tca	3456
Ser Ile Lys Gln Ser Ile Glu Pro Pro Ser Gly Ile Tyr Gly Arg Ser	
1137 1142 1147 1152	
gtc cag caa aat att tca tca tat ctt gat gtt gag aat gaa aaa gat	3504
Val Gln Gln Asn Ile Ser Ser Tyr Leu Asp Val Glu Asn Glu Lys Asp	
1153 1158 1163 1168	
gct aaa gtt tct att tct aaa tct act tat aac aag atg aga caa aaa	3552
Ala Lys Val Ser Ile Ser Lys Ser Thr Tyr Asn Lys Met Arg Gln Lys	
1169 1174 1179 1184	
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Lys Lys Glu Lys Lys Glu Leu Phe His Asn Lys Asp Cys Glu Lys Lys	
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Glu Lys Asn Ser Trp Glu Arg Met Arg His Thr Gly Thr Glu Lys Met	
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Ala Ser Glu Ser Glu Thr Pro Thr Gly Ala Ile Ser Gln Tyr Lys Glu	
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agg atg cct tct gtc act cat agt cca gaa ata atg gat ctg tca gaa	3744
Arg Met Pro Ser Val Thr His Ser Pro Glu Ile Met Asp Leu Ser Glu	
1233 1238 1243 1248	
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Leu Arg Pro Phe Ser Lys Pro Glu Ile Ala Leu Thr Glu Ala Leu Arg	
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Leu Leu Ala Asp Glu Asp Trp Glu Lys Lys Ile Glu Gly Leu Asn Phe	
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Ile Arg Cys Leu Ala Ala Phe His Ser Glu Ile Leu Asn Thr Lys Leu	
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His Glu Thr Asn Phe Ala Val Val Gln Glu Val Lys Asn Leu Arg Ser	
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Lys Ala Leu Arg Ala Met Val Asn Asn Val Thr Pro Ala Arg Ala Val	
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Phe Phe Met Met Cys His Pro Asn Phe Glu Lys Met Leu Glu Lys Tyr	
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Val Pro Ser Lys Asp Leu Pro Tyr Ile Lys Asp Ser Val Arg Asn Leu	
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Gln Gln Lys Gly Leu Gly Glu Ile Pro Leu Asp Thr Pro Ser Ala Lys	
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Thr	Met	His	Lys	Met	Ile	Pro	Leu	Leu	Arg	Asp	His	Leu	Ser	Pro	Ile	
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Asp Met Thr Ile Leu Asn Glu Leu *				
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Lys	Asn	Lys	Arg	Glu	Arg	Lys	Glu	Glu	Arg	Gln	Lys	Lys	Arg	Lys	Arg	
186					191					196					201	
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Glu	Lys	Lys	Glu	Leu	Lys	Leu	Glu	Asn	His	Gln	Glu	Asn	Ser	Arg	Asn	
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Gln	Lys	Pro	Lys	Lys	Arg	Lys	Lys	Gly	Gln	Glu	Ala	Asp	Leu	Glu	Ala	
218					223					228					233	
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Gly	Gly	Glu	Glu	Val	Pro	Glu	Ala	Asn	Gly	Ser	Ala	Gly	Lys	Arg	Ser	
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Lys	Lys	Lys	Lys	Gln	Arg	Lys	Asp	Ser	Ala	Ser	Glu	Glu	Glu	Ala	Arg	
250					255					260					265	
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Val	Gly	Ala	Gly	Lys	Arg	Lys	Arg	Arg	His	Ser	Glu	Val	Glu	Thr	Asp	
266					271					276					281	
tct	aag	aag	aaa	aag	atg	aag	ctc	cca	gag	cat	cct	gag	ggc	gga	gaa	1394
Ser	Lys	Lys	Lys	Lys	Met	Lys	Leu	Pro	Glu	His	Pro	Glu	Gly	Gly	Glu	
282					287					292					297	
cca	gaa	gac	gat	gag	gct	cct	gca	aaa	gac	ccg	tgg	cag	atg	ttg	ctg	1442
Pro	Glu	Asp	Asp	Glu	Ala	Pro	Ala	Lys	Asp	Pro	Trp	Gln	Met	Leu	Leu	
298					303					308					313	
atc	aaa	tgc	agc	att	tat	ttc	cct	ttg	aca	gcc	agg	tgg	aag	cct	caa	1490
Ile	Lys	Cys	Ser	Ile	Tyr	Phe	Pro	Leu	Thr	Ala	Arg	Trp	Lys	Pro	Gln	
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                                     Met Ala Met Ala
                                     1

atg tcg gac agt ggg gcg agc cgc ctg cgt cgg cag ctg gag tca ggg      161
Met Ser Asp Ser Gly Ala Ser Arg Leu Arg Arg Gln Leu Glu Ser Gly
   5                      10                      15                      20

ggt ttt gag gcg cgg ctg tac gtg aag cag ctc tcg cag cag tcg gat      209
Gly Phe Glu Ala Arg Leu Tyr Val Lys Gln Leu Ser Gln Gln Ser Asp
  21                      26                      31                      36

ggg gac cgg gac ctc cag gag cac cgg cag cgc atc cag gcg ctg gcg      257
Gly Asp Arg Asp Leu Gln Glu His Arg Gln Arg Ile Gln Ala Leu Ala
  37                      42                      47                      52

gag gag acg gcg cag aac ctg aag cgc aac gtc tac cag aac tac cgg      305
Glu Glu Thr Ala Gln Asn Leu Lys Arg Asn Val Tyr Gln Asn Tyr Arg
  53                      58                      63                      68

cag ttc ata gag acg gcc cgc gag atc tcc tac ctg gag agc gag atg      353
Gln Phe Ile Glu Thr Ala Arg Glu Ile Ser Tyr Leu Glu Ser Glu Met
  69                      74                      79                      84

tac cag ctc agc cat ttg ctg acc gag cag aaa agc agc ctg gag agc      401
Tyr Gln Leu Ser His Leu Leu Thr Glu Gln Lys Ser Ser Leu Glu Ser
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atc ccg ctt acg ttg ctg cct gcc gct gct gcc gcc gga gcc gcc gcc      449
Ile Pro Leu Thr Leu Leu Pro Ala Ala Ala Ala Ala Gly Ala Ala Ala
 101                      106                      111                      116

gcc tct gga ggg gag gag gga gtc ggt ggg gcg ggg ggc cga gac cac      497
Ala Ser Gly Gly Glu Glu Gly Val Gly Gly Ala Gly Gly Arg Asp His
 117                      122                      127                      132

ctc cga gcc cag gcc gcc ttt ttc tcc acc ccc ggg ggt gcc tcc cgc      545
Leu Arg Gly Gln Ala Gly Phe Phe Ser Thr Pro Gly Gly Ala Ser Arg
 133                      138                      143                      148

gac ggc tcc ggt cca gcc gag gaa gga aag cag cgc act ctc acc acc      593
Asp Gly Ser Gly Pro Gly Glu Glu Gly Lys Gln Arg Thr Leu Thr Thr
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ctg ctt gag aag gtg gaa gcc tgc agg cat ctg ctg gag acg ccg gga      641
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181	186	191	196	
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Met Ala Gln Leu Gln	Arg Val His Gly Phe	Leu Met Asn Asp Cys Leu		
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Leu Val Ala Thr Trp	Leu Pro Gln Arg Arg	Gly Met Tyr Arg Tyr Asn		
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gct ctc tat tcc cta	gat ggt ttg gcc gta	gtc aat gtc aag gac aac		833
Ala Leu Tyr Ser Leu	Asp Gly Leu Ala Val	Val Asn Val Lys Asp Asn		
229	234	239	244	
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Pro Pro Met Lys Asp	Met Phe Lys Leu Leu	Met Phe Pro Glu Asn Arg		
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att ttc cag gcc gaa	aat gct aaa atc aaa	cga gag tgg ctg gaa gtg		929
Ile Phe Gln Ala Glu	Asn Ala Lys Ile Lys	Arg Glu Trp Leu Glu Val		
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ctg gag gac acc aag	agg gcc ctc agt gag	aaa agg cga agg gag cag		977
Leu Glu Asp Thr Lys	Arg Ala Leu Ser Glu	Lys Arg Arg Arg Glu Gln		
277	282	287	292	
gag gag gca gcg gcc	cct cga ggg cca ccc	caa gtg act tcc aag gcc		1025
Glu Glu Ala Ala Ala	Pro Arg Gly Pro Pro	Gln Val Thr Ser Lys Ala		
293	298	303	308	
act aac cca ttt gag	gat gac gaa gaa gaa	gaa cca gct gtt cct gag		1073
Thr Asn Pro Phe Glu	Asp Asp Glu Glu Glu	Glu Pro Ala Val Pro Glu		
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gta gag gaa gag aag	gtg gac ctc tcc atg	gaa tgg atc cag gag tta		1121
Val Glu Glu Glu Lys	Val Asp Leu Ser Met	Glu Trp Ile Gln Glu Leu		
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Pro Glu Asp Leu Asp	Val Cys Ile Ala Gln	Arg Asp Phe Glu Gly Ala		
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gtt gac ctg ctg gat	aaa ttg aac cat tac	ctg gaa gat aaa cct agc		1217
Val Asp Leu Leu Asp	Lys Leu Asn His Tyr	Leu Glu Asp Lys Pro Ser		
357	362	367	372	
cca cct cct gta aaa	gaa cta agg gcc aaa	gtg gag gag cga gtt cga		1265
Pro Pro Pro Val Lys	Glu Leu Arg Ala Lys	Val Glu Glu Arg Val Arg		
373	378	383	388	
cag ctc act gag gtg	cta gtt ttc gaa ctc	tcc cca gat cgt tcc ctg		1313
Gln Leu Thr Glu Val	Leu Val Phe Glu Leu	Ser Pro Asp Arg Ser Leu		
389	394	399	404	

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Arg Gly Gly Pro Lys Ala Thr Arg Arg Ala Val Ser Gln Leu Ile Arg	
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Leu Gly Gln Cys Thr Lys Ala Cys Glu Leu Phe Leu Arg Asn Arg Ala	
421 426 431 436	
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Ala Ala Val His Thr Ala Ile Arg Gln Leu Arg Ile Glu Gly Ala Thr	
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Leu Leu Tyr Ile His Lys Leu Cys His Val Phe Phe Thr Ser Leu Leu	
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Glu Thr Ala Arg Glu Phe Glu Ile Asp Phe Ala Gly Thr Asp Ser Gly	
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Cys Tyr Ser Ala Phe Val Val Trp Ala Arg Ser Ala Met Gly Met Phe	
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Val Asp Ala Phe Ser Lys Gln Val Phe Asp Ser Lys Glu Ser Leu Ser	
501 506 511 516	
aca gca gct gag tgt gta aaa gtg gct aag gag cat tgc cag caa ctg	1697
Thr Ala Ala Glu Cys Val Lys Val Ala Lys Glu His Cys Gln Gln Leu	
517 522 527 532	
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Gly Asp Ile Gly Leu Asp Leu Thr Phe Ile Ile His Ala Leu Leu Val	
533 538 543 548	
aaa gac atc caa ggg gcc ttg cac agt tac aaa gaa atc atc att gaa	1793
Lys Asp Ile Gln Gly Ala Leu His Ser Tyr Lys Glu Ile Ile Ile Glu	
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Ala Thr Lys His Arg Asn Ser Glu Glu Met Trp Arg Arg Met Asn Leu	
565 570 575 580	
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Met Thr Pro Glu Ala Leu Gly Lys Leu Lys Glu Glu Met Lys Ser Cys	
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Gly Val Ser Asn Phe Glu Gln Tyr Thr Gly Asp Asp Cys Trp Val Asn	
597 602 607 612	
cta agt tac aca gtg gtt gct ttc acc aaa cag acc atg ggc ttc ttg	1985
Leu Ser Tyr Thr Val Val Ala Phe Thr Lys Gln Thr Met Gly Phe Leu	
613 618 623 628	

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Glu Glu Ala Leu Lys Leu Tyr Phe Pro Glu Leu His Met Val Leu Leu	
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Glu Ser Leu Val Glu Ile Ile Leu Val Ala Val Gln His Val Asp Tyr	
645 650 655 660	
agt ctt cga tgt gag cag gat cca gag aag aaa gct ttt atc aga cag	2129
Ser Leu Arg Cys Glu Gln Asp Pro Glu Lys Lys Ala Phe Ile Arg Gln	
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Met Glu Asp Gly Val Leu Lys Glu Gly Phe Leu Val Lys Arg	
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Asn Thr Leu Val Tyr Tyr Lys Leu Glu Gly Gly Arg Arg Val Thr Pro	

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Pro Lys Gly Arg Ile Leu Leu Asp Gly Cys Thr Ile Thr Cys Pro Cys				
47	52	57	62	
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Leu Glu Tyr Glu Asn Arg Pro Leu Leu Ile Lys Leu Lys Thr Gln Thr				
63	68	73	78	
tcc acg gag tac ttc ctg gag gcc tgt tct cga gag gag cgg gat gcc				349
Ser Thr Glu Tyr Phe Leu Glu Ala Cys Ser Arg Glu Glu Arg Asp Ala				
79	84	89	94	
tgg gcc ttt gag atc acc ggg gct att cat gca ggg cag ccg ggg aag				397
Trp Ala Phe Glu Ile Thr Gly Ala Ile His Ala Gly Gln Pro Gly Lys				
95	100	105	110	
gtc cag cag ctg cac agc ctg aga aac tcc ttc aag ctg ccc ccg cac				445
Val Gln Gln Leu His Ser Leu Arg Asn Ser Phe Lys Leu Pro Pro His				
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atc agc ctg cat cgc att gtg gac aag atg cac gat agc aac acc gga				493
Ile Ser Leu His Arg Ile Val Asp Lys Met His Asp Ser Asn Thr Gly				
127	132	137	142	
atc cgt tca agc ccc aac atg gag cag gga agc acc tat aaa aag acc				541
Ile Arg Ser Ser Pro Asn Met Glu Gln Gly Ser Thr Tyr Lys Lys Thr				
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ttc ctc ggc tcc tcc ctg gtg gac tgg ctc atc tcc aac agc ttc acg				589
Phe Leu Gly Ser Ser Leu Val Asp Trp Leu Ile Ser Asn Ser Phe Thr				
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gcc agc cgt ctg gag gcg gtg acc ctg gcc tcc atg ctc atg gag gag				637
Ala Ser Arg Leu Glu Ala Val Thr Leu Ala Ser Met Leu Met Glu Glu				
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aac ttc ctc agg cct gtg ggt gtc cga agc atg gga gcc att cgc tct				685
Asn Phe Leu Arg Pro Val Gly Val Arg Ser Met Gly Ala Ile Arg Ser				
191	196	201	206	
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Gly Asp Leu Ala Glu Gln Phe Leu Asp Asp Ser Thr Ala Leu Tyr Thr				
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Phe Ala Glu Ser Tyr Lys Lys Lys Ile Ser Pro Lys Glu Glu Ile Ser				
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Leu Ser Thr Val Glu Leu Ser Gly Thr Val Val Lys Gln Gly Tyr Leu				
239	244	249	254	
gcc aag cag gga cac aag agg aaa aac tgg aag gtg cgt cgc ttt gtt				877
Ala Lys Gln Gly His Lys Arg Lys Asn Trp Lys Val Arg Arg Phe Val				
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Leu Arg Lys Asp Pro Ala Phe Leu His Tyr Tyr Asp Pro Ser Lys Glu	
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Glu Asn Arg Pro Val Gly Gly Phe Ser Leu Arg Gly Ser Leu Val Ser	
287 292 297 302	

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Ala Leu Glu Asp Asn Gly Val Pro Thr Gly Val Lys Gly Asn Val Gln	
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Gly Asn Leu Phe Lys Val Ile Thr Lys Asp Asp Thr His Tyr Tyr Ile	
319 324 329 334	

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Gln Ala Ser Ser Lys Ala Glu Arg Ala Glu Trp Ile Glu Ala Ile Lys	
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Lys Leu Thr *	
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Met Gly Arg	
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Glu	Glu	Asn	Glu	Asp	Gly	Thr	Gln	Val	Ser	Pro	Gly	Ala	His	Tyr	Cys	
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Ser	Pro	Thr	Gly	Ala	Gly	Cys	Pro	Arg	Pro	Cys	Ala	Asp	Thr	Pro	Gly	
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Pro	Gln	Pro	Gln	Pro	Met	Asp	Leu	Arg	Val	Gly	Gln	Arg	Pro	Pro	Val	
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gag	ccc	cca	cca	gag	ccc	aca	ttg	ctg	gcc	ctg	cag	cgt	ccc	cag	cgc	354
Glu	Pro	Pro	Pro	Glu	Pro	Thr	Leu	Leu	Ala	Leu	Gln	Arg	Pro	Gln	Arg	
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ctg	cac	cac	cac	ctc	ttc	cta	gca	ggc	ctg	cag	cag	cag	cgc	tgc	gtg	402
Leu	His	His	His	Leu	Phe	Leu	Ala	Gly	Leu	Gln	Gln	Gln	Arg	Ser	Val	
84					89					94					99	
gag	ccc	atg	agg	ctc	tcc	atg	gac	acg	ccg	atg	ccc	gag	ttg	cag	gtg	450
Glu	Pro	Met	Arg	Leu	Ser	Met	Asp	Thr	Pro	Met	Pro	Glu	Leu	Gln	Val	
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Gly	Pro	Gln	Glu	Gln	Glu	Leu	Arg	Gln	Leu	Leu	His	Lys	Asp	Lys	Ser	
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Lys	Arg	Ser	Ala	Val	Ala	Ser	Ser	Val	Val	Lys	Gln	Lys	Leu	Ala	Glu	
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Gly	Ala	Thr	Arg	Ser	Met	Leu	Ser	Ser	Phe	Leu	Pro	Pro	Val	Pro	Ser	
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Arg	Lys	Asn	Pro	Leu	Leu	Arg	Lys	Glu	Ser	Ala	Pro	Pro	Ser	Leu	Arg	

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Arg Arg Pro Ala Glu Thr Leu Gly Asp Ser Ser Pro Ser Ser Ser Ser				
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acg ccc gca tca gga tgc agc tcc ccc aat gac agc gag cac ggc ccc				930
Thr Pro Ala Ser Gly Cys Ser Ser Pro Asn Asp Ser Glu His Gly Pro				
260	265	270	275	
aat ccc atc ctg ggc tgc gag gcg ctc ttg ggc cag cgg ctg cgg ctg				978
Asn Pro Ile Leu Gly Ser Glu Ala Leu Leu Gly Gln Arg Leu Arg Leu				
276	281	286	291	
cag gag act tct gtg gcc ccg ttc gcc ttg ccg aca gtg tcc ttg ctg				1026
Gln Glu Thr Ser Val Ala Pro Phe Ala Leu Pro Thr Val Ser Leu Leu				
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ccc gca atc act ctg ggg ctg ccc gcc cct gcc agg gct gac agt gac				1074
Pro Ala Ile Thr Leu Gly Leu Pro Ala Pro Ala Arg Ala Asp Ser Asp				
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cgc agg acc cat ccg act ctg ggc cct cgg ggg cca atc ctg ggg agc				1122
Arg Arg Thr His Pro Thr Leu Gly Pro Arg Gly Pro Ile Leu Gly Ser				
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ccc cac act ccc ctc ttc ctg ccc cat ggc ttg gag ccc gag gct ggg				1170
Pro His Thr Pro Leu Phe Leu Pro His Gly Leu Glu Pro Glu Ala Gly				
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Gly Thr Leu Pro Ser Arg Leu Gln Pro Ile Leu Leu Leu Asp Pro Ser				
356	361	366	371	
ggc tct cat gcc ccg ctg ctg act gtg ccc ggg ctt ggg ccc ttg ccc				1266
Gly Ser His Ala Pro Leu Leu Thr Val Pro Gly Leu Gly Pro Leu Pro				
372	377	382	387	
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Phe His Phe Ala Gln Ser Leu Met Thr Thr Glu Arg Leu Ser Gly Ser				
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ggc ctc cac tgg cca ctg agc cgg act cgc tca gag ccc ctg ccc ccc				1362
Gly Leu His Trp Pro Leu Ser Arg Thr Arg Ser Glu Pro Leu Pro Pro				
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Ser Ala Thr Ala Pro Pro Pro Pro Gly Pro Met Gln Pro Arg Leu Glu				
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cag ctc aaa act cac gtc cag gtg atc aag agg tca gcc aag ccg agt				1458
Gln Leu Lys Thr His Val Gln Val Ile Lys Arg Ser Ala Lys Pro Ser				
436	441	446	451	
gag aag ccc cgg ctg cgg cag ata ccc tgc gct gaa gac ctg gag aca				1506
Glu Lys Pro Arg Leu Arg Gln Ile Pro Ser Ala Glu Asp Leu Glu Thr				
452	457	462	467	

gat ggc ggg gga ccg ggc cag gtg gtg gac	gat ggc ctg gag cac agg	1554
Asp Gly Gly Gly Pro Gly Gln Val Val Asp	Asp Gly Leu Glu His Arg	
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Glu Leu Gly His Gly Gln Pro Glu Ala Arg	Gly Pro Ala Pro Leu Gln	
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Gln His Pro Gln Val Leu Leu Trp Glu Gln	Gln Arg Leu Ala Gly Arg	
500	510 515	
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Leu Pro Arg Gly Ser Thr Gly Asp Thr Val	Leu Leu Pro Leu Ala Gln	
516	526 531	
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Gly Gly His Arg Pro Leu Ser Arg Ala Gln	Ser Ser Pro Ala Ala Pro	
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Ala Ser Leu Ser Ala Pro Glu Pro Ala Ser	Gln Ala Arg Val Leu Ser	
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Ser Ser Glu Thr Pro Ala Arg Thr Leu Pro	Phe Thr Thr Gly Leu Ile	
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tat gac tgc gtc atg ctg aag cac cag tgc	tcc tgc ggt gac aac agc	1890
Tyr Asp Ser Val Met Leu Lys His Gln Cys	Ser Cys Gly Asp Asn Ser	
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agg cac ccg gag cac gcc ggc cgc atc cag	agc atc tgg tcc cgg ctg	1938
Arg His Pro Glu His Ala Gly Arg Ile Gln	Ser Ile Trp Ser Arg Leu	
596	606 611	
cag gag cgg ggg ctc cgg agc cag tgt gag	tgt ctc cga ggc cgg aag	1986
Gln Glu Arg Gly Leu Arg Ser Gln Cys Glu	Cys Leu Arg Gly Arg Lys	
612	617 627	
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Ala Ser Leu Glu Glu Leu Gln Ser Val His	Ser Glu Arg His Val Leu	
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Leu Tyr Gly Thr Asn Pro Leu Ser Arg Leu	Lys Leu Asp Asn Gly Lys	
644	649 659	
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Leu Ala Gly Leu Leu Ala Gln Arg Met Phe	Val Met Leu Pro Cys Gly	
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Gly Val Gly Val Asp Thr Asp Thr Ile Trp	Asn Glu Leu His Ser Ser	
676	681 686 691	

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Asn Ala Ala Arg Trp Ala Ala Gly Ser Val Thr Asp Leu Ala Phe Lys	
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Val Ala Ser Arg Glu Leu Lys Asn Gly Phe Ala Val Val Arg Pro Pro	
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Lys Ile Leu Ile Val Asp Trp Asp Val His His Gly Asn Gly Thr Gln	
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Gln Thr Phe Tyr Gln Asp Pro Ser Val Leu Tyr Ile Ser Leu His Arg	
772 777 782 787	
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His Asp Asp Gly Asn Phe Phe Pro Gly Ser Gly Ala Val Asp Glu Val	
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Lys Val Lys Leu Val Val Arg Tyr Thr Pro Lys Val Leu Glu Glu Met	
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gatcaggaga	agtatgctga	gctagagttg	aaggaagctt	ctcttttctaa	caagagaaaag	300
cagagttaaa	tt	atg gca gag aca agt ctg tta gag gct ggg gcc tct				348
		Met Ala Glu Thr Ser Leu Leu Glu Ala Gly Ala Ser				
		1 5 10				
gca gcc tct aca gct gcg gct ttg gag aac tta cag gtg gag gcg agc						396
Ala Ala Ser Thr Ala Ala Ala Leu Glu Asn Leu Gln Val Glu Ala Ser						
13 18 23 28						
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Cys Ser Val Cys Leu Glu Tyr Leu Lys Glu Pro Val Ile Ile Glu Cys						
29 34 39 44						
ggg cac aac ttc tgc aaa gct tgc atc acc cgc tgg tgg gag gac cta						492
Gly His Asn Phe Cys Lys Ala Cys Ile Thr Arg Trp Trp Glu Asp Leu						
45 50 55 60						
gag agg gac ttc cct tgt cct gtc tgt cga aag aca tcc cgc tac cgc						540
Glu Arg Asp Phe Pro Cys Pro Val Cys Arg Lys Thr Ser Arg Tyr Arg						
61 66 71 76						
agt ctc cga cct aat cgg caa cta ggc agt atg gtg gaa att gcc aag						588
Ser Leu Arg Pro Asn Arg Gln Leu Gly Ser Met Val Glu Ile Ala Lys						
77 82 87 92						
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Gln Leu Gln Ala Val Lys Arg Lys Ile Arg Asp Glu Ser Leu Cys Pro						
93 98 103 108						
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Gln His His Glu Ala Leu Ser Leu Phe Cys Tyr Glu Asp Gln Glu Ala						
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Val Cys Leu Ile Cys Ala Ile Ser His Thr His Arg Ala His Thr Val						
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Val Pro Leu Asp Asp Ala Thr Gln Glu Tyr Lys Glu Lys Leu Gln Lys						
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Cys Leu Glu Pro Leu Glu Gln Lys Leu Gln Glu Ile Thr Arg Cys Lys						
157 162 167 172						
tcc tct gag gag aag aag cct ggt gag ctc aag aga cta gtg gaa agt						876
Ser Ser Glu Glu Lys Lys Pro Gly Glu Leu Lys Arg Leu Val Glu Ser						

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cgc cga cag cag atc ttg agg gag ttt gaa gag ctt cat agg cgg ctg				924
Arg Arg Gln Gln Ile Leu Arg Glu Phe Glu Glu Leu His Arg Arg				Leu
189	194	199	204	
gat gaa gag cag cag gtg ttg ctt tca cga ctg gaa gaa gag gaa cag				972
Asp Glu Glu Gln Gln Val Leu Leu Ser Arg Leu Glu Glu Glu Glu Gln				
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Asp Ile Leu Gln Arg Leu Arg Glu Asn Ala Ala His Leu Gly Asp Lys				
221	226	231	236	
cgc cgg gac ctg gcc cac ttg gct gcc gag gtg gag ggc aag tgc tta				1068
Arg Arg Asp Leu Ala His Leu Ala Ala Glu Val Glu Gly Lys Cys Leu				
237	242	247	252	
cag tca ggc ttc gag atg ctt aag gtt cga cct ttg ccc ctg cat agc				1116
Gln Ser Gly Phe Glu Met Leu Lys Val Arg Pro Leu Pro Leu His Ser				
253	258	263	268	
ccc tca ggc tga gtg cagcgtagct ttgcgtagcc tgggatttgt cagcctggga				1171
Pro Ser Gly *				
269				
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ttaaaggata caggcatacc tcagagatat tgtgggttca gttccatacc acttcaataa				1531
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 cttccgcgac atg ttc acg ctg cgt ggg ctc ggc ggc cca ggc gcc att 169
 Met Phe Thr Leu Arg Gly Leu Gly Gly Pro Gly Ala Ile
 1 5 10
 gca tgg atc agc cag gcc ttc gat gac gat tcc gcc ctg ctc aag cac 217
 Ala Trp Ile Ser Gln Ala Phe Asp Asp Asp Ser Ala Leu Leu Lys His
 14 19 24 29
 gag ctg gcc tac tgc ctg ggc cag atg cag gat gcc cgc gcc atc ccc 265
 Glu Leu Ala Tyr Cys Leu Gly Gln Met Gln Asp Ala Arg Ala Ile Pro
 30 35 40 45
 atg ctg gtg gac gtg ctg caa gac acc cgt cag gag ccc atg gtg cgc 313
 Met Leu Val Asp Val Leu Gln Asp Thr Arg Gln Glu Pro Met Val Arg
 46 51 56 61
 cat gag gca ggg gag gcc ctg ggg gcc atc ggg gac ccg gaa gtt ctg 361
 His Glu Ala Gly Glu Ala Leu Gly Ala Ile Gly Asp Pro Glu Val Leu
 62 67 72 77
 gag atc ctg aag cag tat tcc tcg gac ccc gtc atc gag gtg gcc gag 409
 Glu Ile Leu Lys Gln Tyr Ser Ser Asp Pro Val Ile Glu Val Ala Glu
 78 83 88 93
 acc tgc cag ctg gcc gtg cgc agg ctg gag tgg ctg cag cag cac ggc 457
 Thr Cys Gln Leu Ala Val Arg Arg Leu Glu Trp Leu Gln Gln His Gly
 94 99 104 109
 ggg gag ccg gcg gcg gga ccc tac ctc tcc gtg gac cct gcc ccg ccg 505
 Gly Glu Pro Ala Ala Gly Pro Tyr Leu Ser Val Asp Pro Ala Pro Pro
 110 115 120 125
 gct gag gag cgt gac gtg ggg cgc ctg cgg gag gcg ctg ctg gat gag 553
 Ala Glu Glu Arg Asp Val Gly Arg Leu Arg Glu Ala Leu Leu Asp Glu
 126 131 136 141
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 Ser Arg Pro Leu Phe Glu Arg Tyr Arg Ala Met Phe Ala Leu Arg Asn
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 gcg gga ggc gag gag gcc gcc ctg gcg ctg gcc gag ggt ctg cac tgt 649
 Ala Gly Gly Glu Glu Ala Ala Leu Ala Leu Ala Glu Gly Leu His Cys
 158 163 168 173
 ggg agc gcc ctc ttc cgc cac gag gtc ggc tac gtc ctg gga cag ctg 697
 Gly Ser Ala Leu Phe Arg His Glu Val Gly Tyr Val Leu Gly Gln Leu
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cag cac gag gcg gcg gtg ccc cag ctg gcg gcc gcc ctg gcc cga tgc	745
Gln His Glu Ala Ala Val Pro Gln Leu Ala Ala Ala Leu Ala Arg Cys	
190 195 200 205	
acc gag aac ccc atg gtg cgg cac gag tgc gcg gag gcc ctg ggc gcc	793
Thr Glu Asn Pro Met Val Arg His Glu Cys Ala Glu Ala Leu Gly Ala	
206 211 216 221	
att gcc cgg ccc gcc tgc ctg gcc gcg ctg cag gct cac gcg gac gac	841
Ile Ala Arg Pro Ala Cys Leu Ala Ala Leu Gln Ala His Ala Asp Asp	
222 227 232 237	
cca gag cgc gtg gtg cgt gag agc tgc gag gtg gct ctg gac atg tat	889
Pro Glu Arg Val Val Arg Glu Ser Cys Glu Val Ala Leu Asp Met Tyr	
238 243 248 253	
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Glu His Glu Thr Gly Arg Ala Phe Gln Tyr Ala Asp Gly Leu Glu Gln	
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Leu Arg Gly Ala Pro Ser *	
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actcaaagct tgatgaagtt cctaaagtat atagttgtct gaacaacaag ttagaaaagc	360
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Met Ser Asn Ser Asn	
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aat gat gaa aga aaa aaa gct tta att tca tca agg aaa aca tca act	1001
Asn Asp Glu Arg Lys Lys Ala Leu Ile Ser Ser Arg Lys Thr Ser Thr	
6 11 16 21	
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Glu Cys Ala Ser Ser Thr Glu Asn Ser Phe Val Val Ser Ser Ser Ser	
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Val Ser Asn Thr Thr Val Ala Gly Thr Pro Pro Tyr Pro Thr Ser Arg	
38 43 48 53	
agg caa acc ttt att act ttg gag aag ttt gat ggt tca gaa aat aga	1145
Arg Gln Thr Phe Ile Thr Leu Glu Lys Phe Asp Gly Ser Glu Asn Arg	
54 59 64 69	
cct ttt agt cca tcc ccc ttg aat aat att tca tca act gtt aca gtg	1193
Pro Phe Ser Pro Ser Pro Leu Asn Asn Ile Ser Ser Thr Val Thr Val	
70 75 80 85	

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aag Lys 102	caa Gln	aga Arg	gaa Glu	ggg Gly	act Thr 107	ttt Phe	tca Ser	aaa Lys	tct Ser	gat Asp 112	tct Ser	gaa Glu	aaa Lys	ata Ile	gtg Val 117	1289
aat Asn 118	gga Gly	act Thr	aag Lys	aga Arg	tca Ser 123	agc Ser	cgg Arg	aga Arg	gct Ala	ggg Gly 128	aaa Lys	gct Ala	gaa Glu	caa Gln	aca Thr 133	1337
ggg Gly 134	aat Asn	aaa Lys	agg Arg	tct Ser	aag Lys 139	ccc Pro	tta Leu	atg Met	aga Arg	tct Ser 144	gag Glu	ccg Pro	gag Glu	aaa Lys	aat Asn 149	1385
act Thr 150	gag Glu	gaa Glu	tct Ser	gtt Val	gaa Glu 155	ggc Gly	att Ile	gta Val	gtc Val	tta Leu 160	gaa Glu	aat Asn	aac Asn	cca Pro	cct Pro 165	1433
ggg Gly 166	ttg Leu	ctt Leu	aat Asn	caa Gln	aca Thr 171	gaa Glu	tgt Cys	gtg Val	tca Ser	gat Asp 176	aat Asn	cag Gln	gtt Val	cat His	ctt Leu 181	1481
tct Ser 182	gaa Glu	tct Ser	aca Thr	atg Met	gag Glu 187	cat His	gac Asp	aat Asn	aca Thr	aag Lys 192	ctt Leu	aaa Lys	gca Ala	gca Ala	aca Thr 197	1529
gtg Val 198	gaa Glu	aat Asn	gct Ala	gta Val	tta Leu 203	ttg Leu	gaa Glu	act Thr	aat Asn	act Thr 208	gta Val	gag Glu	gag Glu	aaa Lys	aat Asn 213	1577
gta Val 214	gaa Glu	att Ile	aat Asn	ttg Leu	gaa Glu 219	tcc Ser	aaa Lys	gag Glu	aat Asn	aca Thr 224	ccc Pro	cca Pro	gta Val	gta Val	ata Ile 229	1625
tca Ser 230	gca Ala	gat Asp	caa Gln	atg Met	gta Val 235	aat Asn	gag Glu	gat Asp	agt Ser	cag Gln 240	gtt Val	cag Gln	ata Ile	act Thr	cca Pro 245	1673
aat Asn 246	cag Gln	aaa Lys	acc Thr	ctt Leu	aga Arg 251	cgg Arg	tct Ser	tca Ser	agg Arg	cga Arg 256	cgt Arg	tca Ser	gaa Glu	gta Val	gta Val 261	1721
gag Glu 262	tct Ser	acc Thr	act Thr	gaa Glu	agc Ser 267	caa Gln	gat Asp	aag Lys	gaa Glu	aat Asn 272	agt Ser	cat His	caa Gln	aaa Lys	aag Lys 277	1769
gaa Glu 278	cga Arg	cgt Arg	aag Lys	gaa Glu	gaa Glu 283	gaa Glu	aaa Lys	cct Pro	ctt Leu	cag Gln 288	aag Lys	agt Ser	cca Pro	ttg Leu	cat His 293	1817
ata Ile 294	aaa Lys	gat Asp	gat Asp	gtg Val	tta Leu 299	cct Pro	aaa Lys	caa Gln	aaa Lys	ctg Leu 304	att Ile	gct Ala	gaa Glu	caa Gln	act Thr 309	1865
cta Gly 310	cag Gln	gag Arg	aat Lys	tta Val	att Thr 315	gag Ser	aaa Lys	gga Gln	agt Ser	aat Asn 320	tta Val	cat His	gag Gln	aag Lys	act Thr 325	1913

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326					331					336					341	
gca	gac	cct	gag	aac	att	aag	tct	gag	ggg	gat	ggg	acc	cag	gac	att	2009
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Val	Asp	Lys	Ser	Ser	Glu	Lys	Leu	Val	Arg	Gly	Arg	Thr	Arg	Tyr	Gln	
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Ser	Asp	Ser	Ser	Glu	Ala	Lys	Glu	Glu	Gly	Ser	Arg	Lys	Lys	Arg	Ser	
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gga	aaa	tgg	aaa	aac	aaa	agc	aat	gaa	agt	gtt	gac	att	caa	gat	caa	2201
Gly	Lys	Trp	Lys	Asn	Lys	Ser	Asn	Glu	Ser	Val	Asp	Ile	Gln	Asp	Gln	
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gaa	gag	aaa	gtg	gtg	aaa	cag	gaa	tgt	ata	aaa	gct	gaa	aat	cag	tca	2249
Glu	Glu	Lys	Val	Val	Lys	Gln	Glu	Cys	Ile	Lys	Ala	Glu	Asn	Gln	Ser	
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His	Asp	Tyr	Lys	Ala	Thr	Ser	Glu	Glu	Asp	Val	Ser	Ile	Lys	Ser	Pro	
438					443					448					453	
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Ile	Cys	Glu	Lys	Gln	Asp	Glu	Ser	Asn	Thr	Val	Ile	Cys	Gln	Asp	Ser	
454					459					464					469	
aca	gta	act	tca	gat	ttg	ttg	caa	gtt	cct	gat	gat	tta	cca	aat	gtg	2393
Thr	Val	Thr	Ser	Asp	Leu	Leu	Gln	Val	Pro	Asp	Asp	Leu	Pro	Asn	Val	
470					475					480					485	
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Cys	Glu	Glu	Lys	Asn	Glu	Thr	Ser	Lys	Tyr	Ala	Glu	Tyr	Ser	Phe	Thr	
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502					507					512					517	
aga	tta	cat	aag	cga	gac	tct	ttt	gat	aat	tgt	agt	ttg	gga	gaa	tcc	2537
Arg	Leu	His	Lys	Arg	Asp	Ser	Phe	Asp	Asn	Cys	Ser	Leu	Gly	Glu	Ser	
518					523					528					533	
tca	aaa	ata	ggg	ata	tca	gat	att	tct	tcg	ctt	tca	gaa	aaa	act	ttt	2585
Ser	Lys	Ile	Gly	Ile	Ser	Asp	Ile	Ser	Ser	Leu	Ser	Glu	Lys	Thr	Phe	

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Gln Thr Leu Glu Cys	Gln His Lys Arg Ser	Arg Arg Val Arg Arg Ser		
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aaa ggt tgt gat tgc	tgt ggg gaa aaa tca	caa cct cag gaa aag tca		2681
Lys Gly Cys Asp Cys	Cys Gly Glu Lys Ser	Gln Pro Gln Glu Lys Ser		
566	571	576	581	
ctc att ggg tta aag	aat aca gaa aat aat	gac gta gag att agt gaa		2729
Leu Ile Gly Leu Lys	Asn Thr Glu Asn Asn	Asp Val Glu Ile Ser Glu		
582	587	592	597	
aca aaa aag gca gat	gtg caa gca cct gta	agc cca tca gaa act tct		2777
Thr Lys Lys Ala Asp	Val Gln Ala Pro Val	Ser Pro Ser Glu Thr Ser		
598	603	608	613	
caa gct aat cca tat	tct gaa gga caa ttt	tta gat gaa cat cat agt		2825
Gln Ala Asn Pro Tyr	Ser Glu Gly Gln Phe	Leu Asp Glu His His Ser		
614	619	624	629	
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Val Asn Phe His Leu	Gly Leu Lys Glu Asp	Asn Asp Thr Ile Asn Asp		
630	635	640	645	
tca tta att gtt tct	gaa acc aaa tca aaa	gaa aac act atg caa gaa		2921
Ser Leu Ile Val Ser	Glu Thr Lys Ser Lys	Glu Asn Thr Met Gln Glu		
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Ser Leu Pro Ser Gly	Ile Val Asn Phe Arg	Glu Glu Ile Cys Asp Met		
662	667	672	677	
gat tct agt gaa gca	atg tct ctt gaa agc	cag gag tca cct aat gaa		3017
Asp Ser Ser Glu Ala	Met Ser Leu Glu Ser	Gln Glu Ser Pro Asn Glu		
678	683	688	693	
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Asn Phe Lys Thr Val	Gly Pro Cys Leu Gly	Asp Ser Lys Asn Val Ser		
694	699	704	709	
cag gaa tct ttg gag	aca aaa gaa gaa aaa	cca gaa gaa acc cca aaa		3113
Gln Glu Ser Leu Glu	Thr Lys Glu Glu Lys	Pro Glu Glu Thr Pro Lys		
710	715	720	725	
atg gaa ctg agt cta	gag aat gtt act gtt	gaa gga aat gca tgt aaa		3161
Met Glu Leu Ser Leu	Glu Asn Val Thr Val	Glu Gly Asn Ala Cys Lys		
726	731	736	741	
gta aca gaa tcc aat	cta gag aaa gca aaa	act atg gaa ttg aat gta		3209
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Ser	Ser	Asn	Asn	Ser	Ala	Pro	Pro	Lys	Pro	Met	Ser	Leu	Lys	Ile	Glu	
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aga	att	agc	tgc	tgg	aaa	aca	cca	cca	cag	gaa	aat	aga	gat	aaa	aat	963
Arg	Ile	Ser	Ser	Trp	Lys	Thr	Pro	Pro	Gln	Glu	Asn	Arg	Asp	Lys	Asn	
218					223					228					233	
ctt	tcc	agg	aga	cgt	caa	gac	aga	aga	gca	aca	cct	act	gga	agg	cca	1011
Leu	Ser	Arg	Arg	Arg	Gln	Asp	Arg	Arg	Ala	Thr	Pro	Thr	Gly	Arg	Pro	
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Thr	Pro	Cys	Ala	Glu	Arg	Arg	Gly	Gly	Val	*						
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Met Asn Pro Thr Leu Gly Leu Ala Ile Phe Leu Ala Val Leu Leu Thr							
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Val Lys Gly Leu Leu Lys Pro Ser Phe Ser Pro Arg Asn Tyr Lys Ala							
17 22 27 32							
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Leu Ser Glu Val Gln Gly Trp Lys Gln Arg Met Ala Ala Lys Glu Leu							
33 38 43 48							
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Phe	Tyr	Asn	Pro	Gly	Arg	Asn	Ile	Phe	Leu	Ser	Pro	Leu	Ser	Ile	Ser	
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Glu	Ile	Lys	Gln	Gly	Phe	Asn	Phe	Arg	Lys	Met	Pro	Glu	Lys	Asp	Leu	
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Asp	Leu	Lys	Leu	Ser	Ile	Gly	Asn	Thr	Leu	Phe	Ile	Asp	Gln	Arg	Leu	
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Gln	Pro	Gln	Arg	Lys	Phe	Leu	Glu	Asp	Ala	Lys	Asn	Phe	Tyr	Ser	Ala	
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gaa	acc	atc	ctt	acc	aac	ttt	cag	aat	ttg	gaa	atg	gct	cag	aag	cag	888
Glu	Thr	Ile	Leu	Thr	Asn	Phe	Gln	Asn	Leu	Glu	Met	Ala	Gln	Lys	Gln	
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Ile	Asn	Asp	Phe	Ile	Ser	Gln	Lys	Thr	His	Gly	Lys	Ile	Asn	Asn	Leu	
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193					198					203					208	
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Phe	Phe	Arg	Ala	Arg	Trp	Lys	His	Glu	Phe	Asp	Pro	Asn	Val	Thr	Lys	
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Glu	Glu	Asp	Phe	Phe	Leu	Glu	Lys	Asn	Ser	Ser	Val	Lys	Val	Pro	Met	
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Cys	Thr	Ile	Leu	Glu	Ile	Pro	Tyr	Gln	Lys	Asn	Ile	Thr	Ala	Ile	Phe	
257					262					267					272	
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Val Asp Thr Phe Ser Arg Trp Lys Thr Leu Leu Ser Arg Arg Val Val				
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Asp Val Ser Val Pro Arg Leu His Met Thr Gly Thr Phe Asp Leu Lys				
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Lys Thr Leu Ser Tyr Ile Gly Val Ser Lys Ile Phe Glu Glu His Gly				
321	326	331	336	
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Asp Leu Thr Lys Ile Ala Pro His Arg Ser Leu Lys Val Gly Glu Ala				
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Val Asn Lys Ala Glu Leu Lys Met Asp Glu Arg Gly Thr Glu Gly Ala				
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Ala Gly Thr Gly Ala Gln Thr Leu Pro Met Glu Thr Pro Leu Val Val				
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Lys Ile Asp Lys Pro Tyr Leu Leu Leu Ile Tyr Ser Glu Lys Ile Pro				
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17 22 27 32

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33 38 43 48

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Phe Leu Glu Cys Ser Ser Phe Pro Val Tyr Ile Ala Glu Gly Asn His
81 86 91 96

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Thr Ser Glu Leu Arg Ser Glu Lys Leu Glu Thr Asp Cys Glu His Val
97 102 107 112

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161 166 171 176

gtg gtt att aga cct ccc ctc act cag ggc aat ctg agg tac ata gct 876
Val Val Ile Arg Pro Pro Leu Thr Gln Gly Asn Leu Arg Tyr Ile Ala
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Glu Lys Thr Glu Phe Phe Lys His Val Ala Leu Thr Leu Trp Asp Gln
193 198 203 208

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Ile Ser Gln Gln Leu Thr His Lys Asp Lys Lys Ile Arg Met Glu Ala	
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Asn Lys Ser Ser Ser Phe Val Arg Ser Phe Asp Arg Ser Leu Phe Ile	
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Gln Ala Trp Leu Asn Gln Val Leu Gln Arg His Asp Ile Ala Arg Val	
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Ser Val Gln Arg Val Gln Ala Glu Arg Tyr Trp Asn Lys Ser Pro Cys	
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Tyr Pro Gly Glu Glu Ser Asp Lys His Phe Met Gln Asn Phe Ala Cys	
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Thr Asn Pro Ile Ala Phe Val Asn Ala Ile Ser Thr Thr Ser Val Asn	
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Asp Ser Asn His Asn Phe Arg Ser Ser Met Tyr Ile Glu Ile Leu Ile	
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Gln His Cys Ala Cys Lys Met His Pro Gln Trp Ile Gly Leu Ile Thr				
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 Glu His Gln Gly Asp Leu Gly Arg Glu Gln Gly Glu Thr Ser Lys Trp
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 Asp Arg Asn Ser Gln Gly Asp Val Lys Glu Lys Asn Ile Ser Lys Gln
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Leu Glu Pro Leu Leu Leu Leu Leu His	Pro Lys Thr Gln Arg Val			
321	326	331	336	

High Resolution Mass Spectrometry
 Department of Chemistry
 University of California, San Diego
 La Jolla, CA 92037

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Thr Asn Pro Ile Ala Phe Val Asn Ala Ile Ser Thr Thr Ser Val Asn	
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Asn Ala Tyr Thr Pro Gln Leu Ser Leu Leu Gln Asn Leu Leu Ala Arg	
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His Arg Ile Ser Val Met Gly Lys Asp Phe Tyr Ser His Ile Pro Val	
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Ile	Glu	Ile	Leu	Thr	Leu	Leu	Phe	Thr	Glu	Leu	Ala	Lys	Val	Ile	Glu	
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Cys	Lys	Val	Gln	Lys	Val	Ile	Leu	His	Cys	Leu	Leu	Ser	Ser	Ile	Phe	
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Ile	Thr	Cys	Gln	Gly	Met	Phe	Leu	Cys	Ala	Val	Ile	Arg	Ala	Leu	His	
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Ala Ser Leu Thr Thr Ile Asn Leu Gly Ala Thr Lys Asn Leu Arg Gln				
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Gln Ile Leu Glu Leu Leu Gly Pro Ile Ser Met Asn His Gly Val His				
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Val Asn Ile Met His Tyr Val Val Pro Tyr Leu Arg Asn His Ser Trp	
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His Glu Lys Ile His	Ser Gly Asp Lys Pro	Phe Lys Cys Ser Asp	Cys	
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Glu Lys Ala Phe Asn	Ser Arg Ser Arg Leu	Thr Leu His Gln Arg	Thr	
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His Thr Gly Glu Lys Pro Phe Lys Cys Ala Asp Cys Gly Lys Gly Phe	
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Lys Pro Phe Lys Cys Asn Glu Cys Gly Lys Ala Phe Ser Ser His Ala	
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Tyr Leu Ile Val His Arg Arg Ile His Thr Gly Glu Lys Pro Phe Asp	
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Cys Ser Gln Cys Trp Lys Ala Phe Ser Cys His Ser Ser Leu Ile Val	
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His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Ser Glu Cys	
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Gly Arg Ala Phe Ser Gln Asn His Cys Leu Ile Lys His Gln Lys Ile	
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 Pro Val Gly Asp Gly Ala Gln Pro Met Ala Ala Met Gly Gly Leu Lys
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 Val Leu Leu His Trp Ala Gly Pro Gly Gly Gly Glu Pro Trp Val Thr
 30 35 40 45

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Phe Ser Glu Ser Ser Leu Thr Ala Glu Glu Val Cys Ile His Ile Ala	
46 51 56 61	
cat aaa gtt ggt atc act cct cct tgc ttc aat ctc ttt gcc ctc ttc	601
His Lys Val Gly Ile Thr Pro Pro Cys Phe Asn Leu Phe Ala Leu Phe	
62 67 72 77	
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Asp Ala Gln Ala Gln Val Trp Leu Pro Pro Asn His Ile Leu Glu Ile	
78 83 88 93	
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Pro Arg Asp Ala Ser Leu Met Leu Tyr Phe Arg Ile Arg Phe Tyr Phe	
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Gln Leu Leu Asp Pro Ala Ser Phe Glu Tyr Leu Phe Glu Gln Gly Lys	
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His Glu Phe Val Asn Asp Val Ala Ser Leu Trp Glu Leu Ser Thr Glu	
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His Leu Cys His Leu Ala Leu Arg His Gly Ile Pro Leu Glu Glu Val	
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Ala Lys Lys Thr Ser Phe Lys Asp Cys Ile Pro Arg Ser Phe Arg Arg	
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His Ile Arg Gln His Ser Ala Leu Thr Arg Leu Arg Leu Arg Asn Val	
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Asp Pro Gly Pro Glu Ser Ala Ala Gly Pro Pro Thr His Glu Val Leu	
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Asp Ile Thr His Val Val Leu Lys Glu His Cys Val Ser Ile His Arg	
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Ser Ser His Tyr Leu Cys His Glu Val Ala Pro Pro Arg Leu Val Met	
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Ser Ile Arg Asp Gly Ile His Gly Pro Leu Leu Glu Pro Phe Val Gln	
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Ala Lys Leu Arg Pro Glu Asp Gly Leu Tyr Leu Ile His Trp Ser Thr	
462 467 472 477	
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Gln Asp Gly Ala Phe	Val Leu Glu Gly Trp	Gly Arg Ser Phe Pro	Ser	
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Val Arg Glu Leu Gly	Ala Ala Leu Gln Gly	Cys Leu Leu Arg Ala	Gly	
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Asp Asp Cys Phe Ser	Leu Arg Arg Cys Cys	Leu Pro Gln Pro Gly	Glu	
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Thr Ser Asn Leu Ile	Ile Met Arg Gly Ala	Arg Ala Ser Pro Arg	Thr	
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Val Thr Glu Tyr Val	Glu His Gly Pro Leu	Asp Val Trp Leu Arg	Arg	
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Leu Ala Ser Ala Leu	Ser Tyr Leu Glu Asn	Lys Asn Leu Val His	Gly	
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Ile	Gly	Lys	Ser	Val	Lys	Gln	Glu	Asp	Arg	Gln	Thr	Pro	Arg	Ser	Pro	
192					197					202					207	
gac	tcc	acg	gcc	aac	gtt	cgc	att	gag	gag	aaa	cat	gtc	cgg	agg	agc	1331
Asp	Ser	Thr	Ala	Asn	Val	Arg	Ile	Glu	Glu	Lys	His	Val	Arg	Arg	Ser	
208					213					218					223	
tca	gtg	aag	aag	att	gag	aag	atg	aag	gag	aag	cgt	caa	gcc	aag	tac	1379
Ser	Val	Lys	Lys	Ile	Glu	Lys	Met	Lys	Glu	Lys	Arg	Gln	Ala	Lys	Tyr	
224					229					234					239	
acg	gag	aat	aag	ctg	aag	gcc	atc	aaa	gcc	cgg	aat	gag	tac	ttg	ctg	1427
Thr	Glu	Asn	Lys	Leu	Lys	Ala	Ile	Lys	Ala	Arg	Asn	Glu	Tyr	Leu	Leu	
240					245					250					255	
gct	ttg	gag	gca	acc	aat	gca	tct	gtc	ttc	aag	tac	tac	atc	cat	gac	1475
Ala	Leu	Glu	Ala	Thr	Asn	Ala	Ser	Val	Phe	Lys	Tyr	Tyr	Ile	His	Asp	
256					261					266					271	
cta	tct	gac	ctt	att	gat	cag	tgt	tgt	gac	tta	ggc	tac	cat	gca	agt	1523
Leu	Ser	Asp	Leu	Ile	Asp	Gln	Cys	Cys	Asp	Leu	Gly	Tyr	His	Ala	Ser	
272					277					282					287	
ctg	aac	cgg	gct	cta	cgc	acc	ttc	ctc	tct	gct	gag	tta	aac	ctg	gaa	1571
Leu	Asn	Arg	Ala	Leu	Arg	Thr	Phe	Leu	Ser	Ala	Glu	Leu	Asn	Leu	Glu	
288					293					298					303	
cag	tcg	aag	cat	gag	ggt	ctg	gat	gcc	atc	gag	aat	gca	gta	gaa	aac	1619
Gln	Ser	Lys	His	Glu	Gly	Leu	Asp	Ala	Ile	Glu	Asn	Ala	Val	Glu	Asn	
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ctg	gat	gcc	acc	agt	gac	aag	cag	cgc	ctc	atg	gag	atg	tac	aac	aac	1667
Leu	Asp	Ala	Thr	Ser	Asp	Lys	Gln	Arg	Leu	Met	Glu	Met	Tyr	Asn	Asn	

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Val Phe Cys Pro Pro Met Lys Phe Glu Phe Gln Pro His Met Gly Asp	Met Lys Phe Glu Phe Gln Pro His Met Gly Asp			
336	341	346	351	
atg gct tcc cag ctc tgt gcc cag cag cct gtc cag agt gag ctg cta	tgt gcc cag cag cct gtc cag agt gag ctg cta			1763
Met Ala Ser Gln Leu Cys Ala Gln Gln Pro Val Gln Ser Glu Leu Leu	Cys Ala Gln Gln Pro Val Gln Ser Glu Leu Leu			
352	357	362	367	
cag aga tgc caa caa ctg cag tct cgc tta tcc act cta aag att gaa	ctg cag tct cgc tta tcc act cta aag att gaa			1811
Gln Arg Cys Gln Gln Leu Gln Ser Arg Leu Ser Thr Leu Lys Ile Glu	Leu Gln Ser Arg Leu Ser Thr Leu Lys Ile Glu			
368	373	378	383	
aac gaa gag gta aag aag aca atg gag gcc acc ctg caa acc atc cag	aag aca atg gag gcc acc ctg caa acc atc cag			1859
Asn Glu Glu Val Lys Lys Thr Met Glu Ala Thr Leu Gln Thr Ile Gln	Lys Thr Met Glu Ala Thr Leu Gln Thr Ile Gln			
384	389	394	399	
gac att gtg act gtc gag gac ttt gat gtg tct gac tgc ttc cag tac	gag gac ttt gat gtg tct gac tgc ttc cag tac			1907
Asp Ile Val Thr Val Glu Asp Phe Asp Val Ser Asp Cys Phe Gln Tyr	Glu Asp Phe Asp Val Ser Asp Cys Phe Gln Tyr			
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Ser Asn Ser Met Glu Ser Val Lys Ser Thr Val Ser Glu Thr Phe Met	Ser Val Lys Ser Thr Val Ser Glu Thr Phe Met			
416	421	426	431	
agc aag ccc agc att gct aag agg aga gcc aac cag caa gag aca gag	gct aag agg aga gcc aac cag caa gag aca gag			2003
Ser Lys Pro Ser Ile Ala Lys Arg Arg Ala Asn Gln Gln Glu Thr Glu	Ala Lys Arg Arg Ala Asn Gln Gln Glu Thr Glu			
432	437	442	447	
cag ttt tat ttc aca aaa atg aaa gag tac ctg gag ggc agg aac ctc	aaa atg aaa gag tac ctg gag ggc agg aac ctc			2051
Gln Phe Tyr Phe Thr Lys Met Lys Glu Tyr Leu Glu Gly Arg Asn Leu	Lys Met Lys Glu Tyr Leu Glu Gly Arg Asn Leu			
448	453	458	463	
atc acc aag tta caa gcc aag cat gac ctt ctg cag aaa acc ctg gga	gcc aag cat gac ctt ctg cag aaa acc ctg gga			2099
Ile Thr Lys Leu Gln Ala Lys His Asp Leu Leu Gln Lys Thr Leu Gly	Ala Lys His Asp Leu Leu Gln Lys Thr Leu Gly			
464	469	474	479	
gaa agt cag cgg aca gat tgc agt cta gcc agg cgc agc tca act gtg	gat tgc agt cta gcc agg cgc agc tca act gtg			2147
Glu Ser Gln Arg Thr Asp Cys Ser Leu Ala Arg Arg Ser Ser Thr Val	Asp Cys Ser Leu Ala Arg Arg Ser Ser Thr Val			
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agg aaa cag gac tcc agc cag gca att cct ctg gtg gtg gaa agc tgt	cag gca att cct ctg gtg gtg gaa agc tgt			2195
Arg Lys Gln Asp Ser Ser Gln Ala Ile Pro Leu Val Val Glu Ser Cys	Gln Ala Ile Pro Leu Val Val Glu Ser Cys			
496	501	506	511	
atc cgg ttt atc agc aga cac gga cta cag cat gaa gga att ttc cgg	cac gga cta cag cat gaa gga att ttc cgg			2243
Ile Arg Phe Ile Ser Arg His Gly Leu Gln His Glu Gly Ile Phe Arg	His Gly Leu Gln His Glu Gly Ile Phe Arg			
512	517	522	527	
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Val Ser Gly Ser Gln Val Glu Val Asn Asp Ile Lys Asn Ala Phe Glu	Val Glu Val Asn Asp Ile Lys Asn Ala Phe Glu			
528	533	538	543	
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Arg Gly Glu Asp Pro Leu Ala Gly Asp Gln Asn Asp His Asp Met Asp	Glu Asp Pro Leu Ala Gly Asp Gln Asn Asp His Asp Met Asp			
544	549	554	559	

tcc ata gct ggt gtc ctg aag ctt tac ttc cgg ggg ctg gaa cac cct	2387
Ser Ile Ala Gly Val Leu Lys Leu Tyr Phe Arg Gly Leu Glu His Pro	
560 565 570 575	
ctc ttc ccc aag gac atc ttt cat gac ctg atg gcc tgc gtc aca atg	2435
Leu Phe Pro Lys Asp Ile Phe His Asp Leu Met Ala Cys Val Thr Met	
576 581 586 591	
gac aac ctg cag gag aga gct ctg cac atc cgg aaa gtc ctc cta gtc	2483
Asp Asn Leu Gln Glu Arg Ala Leu His Ile Arg Lys Val Leu Leu Val	
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ctg ccc aaa acc act ctg att atc atg aga tac ctc ttt gcc ttc ctc	2531
Leu Pro Lys Thr Thr Leu Ile Ile Met Arg Tyr Leu Phe Ala Phe Leu	
608 613 618 623	
aat cat tta tca cag ttc agt gaa gag aac atg atg gac ccc tac aac	2579
Asn His Leu Ser Gln Phe Ser Glu Glu Asn Met Met Asp Pro Tyr Asn	
624 629 634 639	
ctc gcc atc tgc ttc ggg ccc tgc cta atg tca gtg cca gag ggc cac	2627
Leu Ala Ile Cys Phe Gly Pro Ser Leu Met Ser Val Pro Glu Gly His	
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Asp Gln Val Ser Cys Gln Ala His Val Asn Glu Leu Ile Lys Thr Ile	
656 661 666 671	
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Ile Ile Gln His Glu Asn Ile Phe Pro Ser Pro Arg Glu Leu Glu Gly	
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Pro Val Tyr Ser Arg Gly Gly Ser Met Glu Asp Tyr Cys Asp Ser Pro	
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Glu His His Thr Ser Asp Asp Glu Cys Glu Pro Ile Glu Ala Ile Ala	
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Pro Phe Val Gln Glu Pro Pro Val Thr Glu Gln Lys Ile Tyr Thr Glu
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Thr Gln Asn Val Tyr Ser Val Pro Gly Ser Gln Tyr Leu Tyr Asn Gln
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Pro Ser Cys Tyr Arg Gly Phe Gln Thr Val Lys His Arg Asn Glu Asn
116 121 126 131

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Ala	Asp	Gly	Thr	Ile	Ser	Ser	Glu	Ile	Lys	Ser	Ala	Arg	Gly	Ser	His	
164					169					174					179	
cat	ttg	tcc	att	tac	gct	gag	aat	agt	ttg	aaa	tca	gat	ggt	tac	cat	693
His	Leu	Ser	Ile	Tyr	Ala	Glu	Asn	Ser	Leu	Lys	Ser	Asp	Gly	Tyr	His	
180					185					190					195	
aag	cga	aca	gac	agg	aaa	tcc	aga	atc	att	gca	aaa	aat	gta	tct	acc	741
Lys	Arg	Thr	Asp	Arg	Lys	Ser	Arg	Ile	Ile	Ala	Lys	Asn	Val	Ser	Thr	
196					201					206					211	
tcc	aaa	cct	gag	ttt	gaa	ttt	acc	aca	ctg	gac	ttt	cct	gaa	ctg	caa	789
Ser	Lys	Pro	Glu	Phe	Glu	Phe	Thr	Thr	Leu	Asp	Phe	Pro	Glu	Leu	Gln	
212					217					222					227	
ggt	gca	gag	aac	aat	atg	tca	gag	ata	cag	aag	caa	ccc	aag	tgg	gga	837
Gly	Ala	Glu	Asn	Asn	Met	Ser	Glu	Ile	Gln	Lys	Gln	Pro	Lys	Trp	Gly	
228					233					238					243	
cct	gtc	cac	tct	gtc	tct	acc	gac	att	tct	ctt	cta	aga	gaa	gta	gta	885
Pro	Val	His	Ser	Val	Ser	Thr	Asp	Ile	Ser	Leu	Leu	Arg	Glu	Val	Val	
244					249					254					259	
aaa	cca	gct	gca	gtg	tta	tca	aag	ggt	gaa	ata	gtg	gtg	aaa	aat	aac	933
Lys	Pro	Ala	Ala	Val	Leu	Ser	Lys	Gly	Glu	Ile	Val	Val	Lys	Asn	Asn	
260					265					270					275	
cca	aat	gaa	tct	gta	act	gct	aat	gcc	gct	acc	aat	tct	cct	tca	tgt	981
Pro	Asn	Glu	Ser	Val	Thr	Ala	Asn	Ala	Ala	Thr	Asn	Ser	Pro	Ser	Cys	
276					281					286					291	
aca	aga	gag	tta	tct	tgg	aca	cca	atg	ggt	tat	ggt	ggt	cga	cag	aca	1029
Thr	Arg	Glu	Leu	Ser	Trp	Thr	Pro	Met	Gly	Tyr	Val	Val	Arg	Gln	Thr	
292					297					302					307	
tta	tct	aca	gaa	ctg	tca	gca	gcc	cct	aaa	aat	ggt	act	tct	atg	ata	1077
Leu	Ser	Thr	Glu	Leu	Ser	Ala	Ala	Pro	Lys	Asn	Val	Thr	Ser	Met	Ile	
308					313					318					323	
aac	tta	aag	acc	att	gct	tca	tca	gca	gat	cct	aaa	aat	ggt	agt	ata	1125
Asn	Leu	Lys	Thr	Ile	Ala	Ser	Ser	Ala	Asp	Pro	Lys	Asn	Val	Ser	Ile	
324					329					334					339	
cca	tct	tct	gaa	gct	tta	tct	tcg	gat	cct	tcc	tac	aac	aaa	gaa	aaa	1173
Pro	Ser	Ser	Glu	Ala	Leu	Ser	Ser	Asp	Pro	Ser	Tyr	Asn	Lys	Glu	Lys	
340					345					350					355	
cac	att	att	cat	cct	acc	caa	aag	tct	aaa	gca	tca	caa	ggt	agt	gac	1221
His	Ile	Ile	His	Pro	Thr	Gln	Lys	Ser	Lys	Ala	Ser	Gln	Gly	Ser	Asp	

356	361	366	371	
ctt gaa caa aat gaa gcc tca aga aag aat aag aaa aaa aaa aaa aaa				1269
Leu Glu Gln Asn Glu Ala Ser Arg Lys Asn Lys Lys Lys Lys Lys Lys				
372	377	382	387	
tct aca tca aaa tat gaa gtc ctg aca gtt caa gag cct cca agg att				1317
Ser Thr Ser Lys Tyr Glu Val Leu Thr Val Gln Glu Pro Pro Arg Ile				
388	393	398	403	
gaa gat gcc gag gaa ttt ccc aac ctg gca gtt gca tct gaa aga aga				1365
Glu Asp Ala Glu Glu Phe Pro Asn Leu Ala Val Ala Ser Glu Arg Arg				
404	409	414	419	
gac aga ata gag aca ccg aaa ttt caa tct aag cag cag cca cag gat				1413
Asp Arg Ile Glu Thr Pro Lys Phe Gln Ser Lys Gln Gln Pro Gln Asp				
420	425	430	435	
aat ttt aaa aat aat gta aag aag agc cag ctt cca gtg cag ttg gac				1461
Asn Phe Lys Asn Asn Val Lys Lys Ser Gln Leu Pro Val Gln Leu Asp				
436	441	446	451	
ttg ggg ggc atg ctg aca gcc ctg gag aag aag cag cac tct cag cat				1509
Leu Gly Gly Met Leu Thr Ala Leu Glu Lys Lys Gln His Ser Gln His				
452	457	462	467	
gca aag cag tcc tcc aaa cca gtg gta gtc tca gtt gga gca gtg cca				1557
Ala Lys Gln Ser Ser Lys Pro Val Val Val Ser Val Gly Ala Val Pro				
468	473	478	483	
gtc ctt tcc aaa gaa tgt gca tca ggg gag aga ggc cgc cgc atg agt				1605
Val Leu Ser Lys Glu Cys Ala Ser Gly Glu Arg Gly Arg Arg Met Ser				
484	489	494	499	
caa atg aag acc ccg cac aat ccc ttg gac tcc agc gcc cca ctg atg				1653
Gln Met Lys Thr Pro His Asn Pro Leu Asp Ser Ser Ala Pro Leu Met				
500	505	510	515	
aag aaa ggg aag cag agg gag atc ccc aag gcc aag aag cca acc tca				1701
Lys Lys Gly Lys Gln Arg Glu Ile Pro Lys Ala Lys Lys Pro Thr Ser				
516	521	526	531	
ctg aag aag att att ttg aaa gaa cgg caa gag aga aag cag cgt ctc				1749
Leu Lys Lys Ile Ile Leu Lys Glu Arg Gln Glu Arg Lys Gln Arg Leu				
532	537	542	547	
caa gaa aat gct gtg agt cca gct ttt acc agt gat gac aca caa gat				1797
Gln Glu Asn Ala Val Ser Pro Ala Phe Thr Ser Asp Asp Thr Gln Asp				
548	553	558	563	
gga gag agt ggt ggt gat gac cag ttt ccc gag cag gca gag ctg tca				1845
Gly Glu Ser Gly Gly Asp Asp Gln Phe Pro Glu Gln Ala Glu Leu Ser				
564	569	574	579	
ggg cca gag ggg atg gac gaa ctg atc tcc act cct tcg gtt gag gac				1893
Gly Pro Glu Gly Met Asp Glu Leu Ile Ser Thr Pro Ser Val Glu Asp				
580	585	590	595	

aag tct gaa gag cca cca ggc aca gag ctc cag agg gac aca gag gcc	1941
Lys Ser Glu Glu Pro Pro Gly Thr Glu Leu Gln Arg Asp Thr Glu Ala	
596 601 606 611	
tcc cac ctt gct ccc aat cac acc acc ttc cct aag atc cac agc cgc	1989
Ser His Leu Ala Pro Asn His Thr Thr Phe Pro Lys Ile His Ser Arg	
612 617 622 627	
aga ttc agg gat tac tgc agc cag atg ctt agt aaa gaa gtg gat gct	2037
Arg Phe Arg Asp Tyr Cys Ser Gln Met Leu Ser Lys Glu Val Asp Ala	
628 633 638 643	
tgt gtt acc gac cta ctc aaa gaa ctg gtc cgt ttc caa gac cgt atg	2085
Cys Val Thr Asp Leu Leu Lys Glu Leu Val Arg Phe Gln Asp Arg Met	
644 649 654 659	
tac cag aaa gat cca gtc aag gcc aag act aaa cgt cga ctt gtg ttg	2133
Tyr Gln Lys Asp Pro Val Lys Ala Lys Thr Lys Arg Arg Leu Val Leu	
660 665 670 675	
ggg ttg agg gag gtt ctc aaa cac ctg aag ctc aaa aaa ctg aaa tgt	2181
Gly Leu Arg Glu Val Leu Lys His Leu Lys Leu Lys Lys Leu Lys Cys	
676 681 686 691	
gtc att att tct ccc aac tgt gag aag ata cag tca aaa ggt ggg ctg	2229
Val Ile Ile Ser Pro Asn Cys Glu Lys Ile Gln Ser Lys Gly Gly Leu	
692 697 702 707	
gat gac act ttg cac aca att att gat tat gcc tgt gag cag aac att	2277
Asp Asp Thr Leu His Thr Ile Ile Asp Tyr Ala Cys Glu Gln Asn Ile	
708 713 718 723	
ccc ttt gtg ttt gct ctc aac cgc aaa gct ctg ggg cgc agt ttg aat	2325
Pro Phe Val Phe Ala Leu Asn Arg Lys Ala Leu Gly Arg Ser Leu Asn	
724 729 734 739	
aag gca gtt cct gtc agt gtg gtg ggg atc ttc agc tat gat ggg gcc	2373
Lys Ala Val Pro Val Ser Val Val Gly Ile Phe Ser Tyr Asp Gly Ala	
740 745 750 755	
cag gat cag ttc cac aag atg gtt gag ctg aca gtg gcg gcc cga cag	2421
Gln Asp Gln Phe His Lys Met Val Glu Leu Thr Val Ala Ala Arg Gln	
756 761 766 771	
gcg tac aag acc atg ctg gag aat gtg cag cag gag ctg gtg gga gag	2469
Ala Tyr Lys Thr Met Leu Glu Asn Val Gln Gln Glu Leu Val Gly Glu	
772 777 782 787	
ccc agg cct cag gca cct ccc agc cta ccc aca cag ggc ccc agc tgc	2517
Pro Arg Pro Gln Ala Pro Pro Ser Leu Pro Thr Gln Gly Pro Ser Cys	
788 793 798 803	
cct gca gaa gat ggc ccc cca gcc ctg aaa gaa aaa gaa gag cca cac	2565
Pro Ala Glu Asp Gly Pro Pro Ala Leu Lys Glu Lys Glu Glu Pro His	
804 809 814 819	

tac att gaa atc tgg aaa aaa cat ctg gaa gca tac agt gga tgt acc 2613
Tyr Ile Glu Ile Trp Lys Lys His Leu Glu Ala Tyr Ser Gly Cys Thr
820 825 830 835

ctg gag cta gaa gaa tcc ttg gag gct tca acc tct caa atg atg aat 2661
Leu Glu Leu Glu Glu Ser Leu Glu Ala Ser Thr Ser Gln Met Met Asn
836 841 846 851

ttg aat tta tga gag ttcttgctg tgtgtctgta ttttgggtaa ggaggggagg 2716
Leu Asn Leu *
852

tctgaaaaag actttggggc tttttttctt gtttttcatg acaatgtaat ttgtgtaact 2776

gttgaatctg gaaattgatc agcattaaag ggcacatgaa gcagaaaaaa aaaaaaaaaa 2835

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<213> Homo sapiens

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taccgggggc cgcagccgca gccggcgccg cctccgccc tccccaacag caggccgagt 180

cccgtagcat ccggtaggga aatggctgtg ctttcgggtcc cgcgccgaagt caccgtgatc 240

ctgttagata togaaggaca ttttatttcc ttacatcgaa gaaaatgtta aagagtatct 300

gcagacacat tgggaagaag aggagtgcc gcaggatgtc agtcttttga ggaaacaggt 360

tctttgcaga tgtagttcca gcagtcagga agtggagaga ggccgga atg aag gtg 416
Met Lys Val
1

tac atc tat tcc tca ggg agt gtg gag gca cag aaa ctg tta ttc ggg 464
Tyr Ile Tyr Ser Ser Gly Ser Val Glu Ala Gln Lys Leu Leu Phe Gly
4 9 14 19

cat tct acg gag gga gat att ctt gag ctt gtt gat ggt cac ttt gat 512
His Ser Thr Glu Gly Asp Ile Leu Glu Leu Val Asp Gly His Phe Asp
20 25 30 35

acc aag att gga cac aaa gta gag agt gaa agt tac cga aag att gca 560
Thr Lys Ile Gly His Lys Val Glu Ser Glu Ser Tyr Arg Lys Ile Ala
36 41 46 51

gac agc att ggg tgc tca acc aac aac att ttg ttt ctg aca gat gtt	608
Asp Ser Ile Gly Cys Ser Thr Asn Asn Ile Leu Phe Leu Thr Asp Val	
52 57 62 67	
act cga gag gcc agt gct gct gag gaa gca gat gtg cac gta gct gtg	656
Thr Arg Glu Ala Ser Ala Ala Glu Glu Ala Asp Val His Val Ala Val	
68 73 78 83	
gtg gtg aga cca ggc aac gca gga tta aca gat gat gag aag act tac	704
Val Val Arg Pro Gly Asn Ala Gly Leu Thr Asp Asp Glu Lys Thr Tyr	
84 89 94 99	
tac agc ctc atc aca tcc ttc agt gaa cta tac ctg cct tcc tca acc	752
Tyr Ser Leu Ile Thr Ser Phe Ser Glu Leu Tyr Leu Pro Ser Ser Thr	
100 105 110 115	
tag agaa gggttgttaa ggcagaccgc cctgttcccc agagttgtcc ctgtagtgtc	809
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116	
taggtttatt ctaatggtaa aagtaactta cttaaaaaaac atatgtacac atatgtatgc	869
aagtatgtat atatgtgtat gctcagatta acttccatag gtacataagt gaaagaagtc	929
tcagttcagt gaacacaaaaa cttattttaa gatgctttat atgtagaaat tgtttcaaat	989
catactctaa cccttagtga gggcaaagtg tagttggtag aagaaattgc taaataccta	1049
tctaatgtgc tatgtttatc aaatcgtgta ctaaaatgga aagctagttt tgagaaatta	1109
ttcagaagcc ttgttatttt aaaaatgaaa tatttcaaag actgaatatt ttcaaagaaa	1169
atgaataatt cattgccctt gtgatttaga agattataac agctgtattt catatttgcc	1229
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atctaaaaca gagatgtggt tcttaatggt taacagaaca gttctaatac tgccacgtgt	1469
tatcattata gattttatag ttgcctttct aactacttag cacagtttga gaatacgtta	1529
attgctattt actatttaaa aagttttact gaaatcagtc cataacatta agatgagccc	1589
taatatgtaa gattttcctc tggaatggat gtgagaaatg taaattttat aacagcagta	1649
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cattttttct tcaaaaaaaaa aaaaaaaaa	1738

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<211> 1402

<212> DNA
<213> Homo sapiens

<220>
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<222> (313) .. (1347)

<400> 234

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cccacagccc	cacacactgg	gagaccgccc	accgcaaacc	gcggagaccc	ccgtctagat	120
ttaaagcgcg	gctgcgcccg	gcttctgacg	tccattgaat	cgcgcggggc	gccggcgggc	180
agcgcggggc	tgcgcgggga	tcgctgcgcc	ctccgccgct	ggcctctgcg	acgcgcggcg	240
ctcgcggcag	ccaccgcggc	ccgcgcgggc	tccccgcgcc	gctgcgctcc	tcgccccgcg	300
cctgccccca	gg	atg gtc cgc gcg agg cac cag ccg ggt ggg ctt tgc				348
		Met Val Arg Ala Arg His Gln Pro Gly Gly Leu Cys				
		1 5 10				
ctc ctg ctg ctg ctg ctc tgc cag ttc atg gag gac cgc agt gcc cag						396
Leu Leu Leu Leu Leu Leu Cys Gln Phe Met Glu Asp Arg Ser Ala Gln						
13 18 23 28						
gct ggg aac tgc tgg ctc cgt caa gcg aag aac ggc cgc tgc cag gtc						444
Ala Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val						
29 34 39 44						
ctg tac aag acc gaa ctg agc aag gag gag tgc tgc agc acc ggc cgg						492
Leu Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg						
45 50 55 60						
ctg agc acc tcg tgg acc gag gag gac gtg aat gac aac aca ctc ttc						540
Leu Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe						
61 66 71 76						
aag tgg atg att ttc aac ggg ggc gcc ccc aac tgc atc ccc tgt aaa						588
Lys Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys						
77 82 87 92						
gaa acg tgt gag aac gtg gac tgt gga cct ggg aaa aaa tgc cga atg						636
Glu Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met						
93 98 103 108						
aac aag aag aac aaa ccc cgc tgc gtc tgc gcc ccg gat tgt tcc aac						684
Asn Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn						
109 114 119 124						
atc acc tgg aag ggt cca gtc tgc ggg ctg gat ggg aaa acc tac cgc						732
Ile Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg						
125 130 135 140						
aat gaa tgt gca ctc cta aag gca aga tgt aaa gag cag cca gaa ctg						780
Asn Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu						
141 146 151 156						

gaa gtc cag tac caa ggc aga tgt aaa aag act tgt cgg gat gtt ttc	828
Glu Val Gln Tyr Gln Gly Arg Cys Lys Lys Thr Cys Arg Asp Val Phe	
157 162 167 172	
tgt cca ggc agc tcc aca tgt gtg gtg gac cag acc aat aat gcc tac	876
Cys Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr	
173 178 183 188	
tgt gtg acc tgt aat cgg att tgc cca gag cct gct tcc tct gag caa	924
Cys Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ala Ser Ser Glu Gln	
189 194 199 204	
tat ctc tgt ggg aat gat gga gtc acc tac tcc agt gcc tgc cac ctg	972
Tyr Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu	
205 210 215 220	
aga aag gct acc tgc ctg ctg ggc aga tct att gga tta gcc tat gag	1020
Arg Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu	
221 226 231 236	
gga aag tgt atc aaa gca aag tcc tgt gaa gat atc cag tgc act ggt	1068
Gly Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Thr Gly	
237 242 247 252	
ggg aaa aaa tgt tta tgg gat ttc aag gtt ggg aga ggc cgg tgt tcc	1116
Gly Lys Lys Cys Leu Trp Asp Phe Lys Val Gly Arg Gly Arg Cys Ser	
253 258 263 268	
ctc tgt gat gag ctg tgc cct gac agt aag tgc gat gag cct gtc tgt	1164
Leu Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys	
269 274 279 284	
gcc agt gac aat gcc act tat gcc agc gag tgt gcc atg aag gaa gct	1212
Ala Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala	
285 290 295 300	
gcc tgc tcc tca ggt gtg cta ctg gaa gta aag cac tcc gga tct tgc	1260
Ala Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys	
301 306 311 316	
aac tcc att tcg gaa gac acc gag gaa gag gag gaa gat gaa gac cag	1308
Asn Ser Ile Ser Glu Asp Thr Glu Glu Glu Glu Glu Asp Glu Asp Gln	
317 322 327 332	
gac tac agc ttt cct ata tct tct att cta gag tgg taa actctctata	1357
Asp Tyr Ser Phe Pro Ile Ser Ser Ile Leu Glu Trp *	
333 338 343	
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 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (243)..(2192)

<400> 235

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ccaattcact gtcaatggaa ttacagctat agcggcagtg tatataggat tgctttttct	180
cgtcttcttg ggttctgaag taacggaagc taccttgtat aaagacctca acactgctga	240
cc atg atc agc gca gcc tgg agc atc ttc ctc atc ggg act aaa att	287
Met Ile Ser Ala Ala Trp Ser Ile Phe Leu Ile Gly Thr Lys Ile	
1 5 10	
ggg ctg ttc ctt caa gta gca cct cta tca gtt atg gct aaa tcc tgt	335
Gly Leu Phe Leu Gln Val Ala Pro Leu Ser Val Met Ala Lys Ser Cys	
16 21 26 31	
cca tct gtg tgt cgc tgc gat gcg ggt ttc att tac tgt aat gat cgc	383
Pro Ser Val Cys Arg Cys Asp Ala Gly Phe Ile Tyr Cys Asn Asp Arg	
32 37 42 47	
ttt ctg aca tcc att cca aca gga ata cca gag gat gct aca act ctc	431
Phe Leu Thr Ser Ile Pro Thr Gly Ile Pro Glu Asp Ala Thr Thr Leu	
48 53 58 63	
tac ctt cag aac aac caa ata aat aat gct ggg att cct tca gat ttg	479
Tyr Leu Gln Asn Asn Gln Ile Asn Asn Ala Gly Ile Pro Ser Asp Leu	
64 69 74 79	
aaa aac ttg ctg aaa gta gaa aga ata tac cta tac cac aac agt tta	527
Lys Asn Leu Leu Lys Val Glu Arg Ile Tyr Leu Tyr His Asn Ser Leu	
80 85 90 95	
gat gaa ttt cct acc aac ctc cca aag tat gta aaa gag tta cat ttg	575
Asp Glu Phe Pro Thr Asn Leu Pro Lys Tyr Val Lys Glu Leu His Leu	
96 101 106 111	
caa gaa aat aac ata agg act atc act tat gat tca ctt tca aaa att	623
Gln Glu Asn Asn Ile Arg Thr Ile Thr Tyr Asp Ser Leu Ser Lys Ile	
112 117 122 127	
ccc tat ctg gaa gaa tta cat tta gat gac aac tct gtc tct gca gtt	671
Pro Tyr Leu Glu Glu Leu His Leu Asp Asp Asn Ser Val Ser Ala Val	
128 133 138 143	
agc ata gaa gag gga gca ttc cga gac agc aac tat ctc cga ctg ctt	719
Ser Ile Glu Glu Gly Ala Phe Arg Asp Ser Asn Tyr Leu Arg Leu Leu	
144 149 154 159	
ttc ctg tcc cgt aat cac ctt agc aca att ccc tgg ggt ttg ccc agg	767
Phe Leu Ser Arg Asn His Leu Ser Thr Ile Pro Trp Gly Leu Pro Arg	

160	165	170	175	
act ata gaa gaa cta	cgc ttg gat gat aat	cgc ata tcc act att tca	815	
Thr Ile Glu Glu Leu	Arg Leu Asp Asp Asn	Arg Ile Ser Thr Ile Ser		
176	181	186	191	
tca cca tct ctt caa	ggg ctc act agt cta	aaa cgc ctg gtt cta gat	863	
Ser Pro Ser Leu Gln	Gly Leu Thr Ser Leu	Lys Arg Leu Val Leu Asp		
192	197	202	207	
gga aac ctg ttg aac	aat cat ggt tta ggt	gac aaa gtt ttc ttc aac	911	
Gly Asn Leu Leu Asn	Asn His Gly Leu Gly	Asp Lys Val Phe Phe Asn		
208	213	218	223	
cta gtt aat ttg aca	gag ctg tcc ctg gtg	cgg aat tcc ctg act gct	959	
Leu Val Asn Leu Thr	Glu Leu Ser Leu Val	Arg Asn Ser Leu Thr Ala		
224	229	234	239	
gca cca gta aac ctt	cca ggc aca aac ctg	agg aag ctt tat ctt caa	1007	
Ala Pro Val Asn Leu	Pro Gly Thr Asn Leu	Arg Lys Leu Tyr Leu Gln		
240	245	250	255	
gat aac cac atc aat	cgg gtg ccc cca aat	gct ttt tct tat cta agg	1055	
Asp Asn His Ile Asn	Arg Val Pro Pro Asn	Ala Phe Ser Tyr Leu Arg		
256	261	266	271	
cag ctc tat cga ctg	gat atg tcc aat aat	aac cta agt aat tta cct	1103	
Gln Leu Tyr Arg Leu	Asp Met Ser Asn Asn	Asn Leu Ser Asn Leu Pro		
272	277	282	287	
cag ggt atc ttt gat	gat ttg gac aat ata	aca caa ctg att ctt cgc	1151	
Gln Gly Ile Phe Asp	Asp Leu Asp Asn Ile	Thr Gln Leu Ile Leu Arg		
288	293	298	303	
aac aat ccc tgg tat	tgc ggg tgc aag atg	aaa tgg gta cgt gac tgg	1199	
Asn Asn Pro Trp Tyr	Cys Gly Cys Lys Met	Lys Trp Val Arg Asp Trp		
304	309	314	319	
tta caa tca cta cct	gtg aag gtc aac gtg	cgt ggg ctc atg tgc caa	1247	
Leu Gln Ser Leu Pro	Val Lys Val Asn Val	Arg Gly Leu Met Cys Gln		
320	325	330	335	
gcc cca gaa aag gtt	cgt ggg atg gct att	aag gat ctc aat gca gaa	1295	
Ala Pro Glu Lys Val	Arg Gly Met Ala Ile	Lys Asp Leu Asn Ala Glu		
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Thr Ala Ile Pro Asn	Thr Val Tyr Pro Ala	Gln Gly Gln Trp Pro Ala		
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Pro Val Thr Lys Gln	Pro Asp Ile Lys Asn	Pro Lys Leu Thr Lys Asp		
384	389	394	399	

cac	caa	acc	aca	ggg	agt	ccc	tca	aga	aaa	aca	att	aca	att	act	gtg	1487
His	Gln	Thr	Thr	Gly	Ser	Pro	Ser	Arg	Lys	Thr	Ile	Thr	Ile	Thr	Val	
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Lys	Ser	Val	Thr	Ser	Asp	Thr	Ile	His	Ile	Ser	Trp	Lys	Leu	Ala	Leu	
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cct	atg	act	gct	ttg	aga	ctc	agc	tgg	ctt	aaa	ctg	ggc	cat	agc	ccg	1583
Pro	Met	Thr	Ala	Leu	Arg	Leu	Ser	Trp	Leu	Lys	Leu	Gly	His	Ser	Pro	
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Tyr	Leu	Val	Thr	Ala	Leu	Glu	Pro	Asp	Ser	Pro	Tyr	Lys	Val	Cys	Met	
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Cys	Ile	Glu	Thr	Glu	Thr	Ala	Pro	Leu	Arg	Met	Tyr	Asn	Pro	Thr	Thr	
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Thr	Leu	Asn	Arg	Glu	Gln	Glu	Lys	Glu	Pro	Tyr	Lys	Asn	Pro	Asn	Leu	
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3763

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Ala Met Lys Thr Asn Ser His Val Lys Glu Glu Leu Glu His Pro Gly	
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Pro Ser Lys Gln Cys Gly Phe Cys Lys Lys Pro His Gly Asn Arg Phe				
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Met Val Gly Cys Gly Arg Cys Asp Asp Trp Phe His Gly Asp Cys Val				
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Gly Leu Ser Leu Ser Gln Ala Gln Gln Met Gly Glu Glu Asp Lys Glu				
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Tyr Val Cys Val Lys Cys Cys Ala Glu Glu Asp Lys Lys Thr Glu Ile				
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Ser Lys Glu Leu Ala Ala Trp Arg Arg Arg Glu Asn Arg His Thr Ile	
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Ser Met Ser Lys Asp Thr Thr Ser Gln His Arg Gln His Leu Phe Asp	
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Thr Asp Gly Glu Asn Lys Glu Ile Lys Val Lys Val Asp Asn Ile Ser	
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Ser Ser Ile Ser Ala Gly Ser Leu Thr Ser Leu Ser Leu Arg Gly Lys	
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Ser Lys Gln Glu Glu Thr Val Glu Ser Lys Glu Lys Thr Leu Lys Arg	

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Gln Leu Gln Glu Asp Gln Glu Asn Asn Leu Gln Asp Asn Gln Thr Ser				
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Pro Ser Glu Phe Pro Ser Lys Ser Ile Thr Phe Thr Ser Arg Ser Thr				
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Ser Pro Arg Thr Ser Thr Asn Phe Ser Pro Met Arg Pro Gln Gln Pro				
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Ser Gly Glu Asp Gly Gly Ser Lys Asn Cys Phe Gly Arg Ser Gly Ala
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Ser Leu Leu Arg Ser Pro Glu Asn Val Ile Glu Thr Ile Ser Ser Leu				
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Lys Gly Leu Ala Gly His Leu Lys Ser Asn Ser Pro Arg Leu Met Asp				
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Ser Leu Ala Lys His	Leu Asp Lys Ser Asp	Pro Lys Val Lys Pro Ile		
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Val Ala Lys Leu Ile	Ala Ala Leu Ser Thr	Pro Ser Gln Gln Val Gln		
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Glu Ser Val Ala Ser	Cys Leu Pro Pro Leu	Val Pro Ala Ile Lys Glu		
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Asp Ala Gly Gly Met	Ile Gln Arg Leu Met	Gln Gln Leu Leu Glu Ser		
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Gln	Leu	Leu	Gly	Asp	Leu	Leu	Phe	His	Ile	Ser	Gly	Val	Thr	Gly	Lys	
1639					1644					1649					1654	
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Met	Thr	Thr	Glu	Thr	Ala	Ser	Glu	Asp	Asp	Asn	Phe	Gly	Thr	Ala	Gln	
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tcc	aac	aag	gcg	atc	atc	act	gcc	ctg	ggg	gta	gag	cgg	cgg	aac	cgg	5693
Ser	Asn	Lys	Ala	Ile	Ile	Thr	Ala	Leu	Gly	Val	Glu	Arg	Arg	Asn	Arg	
1671					1676					1681					1686	
gtg	ttg	gca	ggg	ctg	tac	atg	ggc	cgc	tca	gac	acc	cag	ctg	gtg	gtg	5741
Val	Leu	Ala	Gly	Leu	Tyr	Met	Gly	Arg	Ser	Asp	Thr	Gln	Leu	Val	Val	
1687					1692					1697					1702	
cgg	cag	gcg	tcc	ctg	cat	gtc	tgg	aag	att	gtt	gtc	tcc	aat	acc	ccc	5789
Arg	Gln	Ala	Ser	Leu	His	Val	Trp	Lys	Ile	Val	Val	Ser	Asn	Thr	Pro	
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1719					1724					1729					1734	
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Phe	Leu	Ala	Ser	Thr	Cys	Ala	Asp	Lys	Arg	Thr	Ile	Ala	Ala	Arg	Thr	
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Leu	Gly	Asp	Leu	Val	Arg	Lys	Leu	Gly	Glu	Lys	Ile	Leu	Pro	Glu	Ile	
1751					1756					1761					1766	
atc	ccc	atc	ctt	gag	gaa	ggc	ctg	agg	tct	cag	aag	agc	gat	gag	agg	5981
Ile	Pro	Ile	Leu	Glu	Gly	Leu	Arg	Ser	Gln	Lys	Ser	Asp	Glu	Arg		
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cag	ggt	gtg	tgc	att	ggc	cta	agt	gag	atc	atg	aag	tcc	acc	agc	cgg	6029
Gln	Gly	Val	Cys	Ile	Gly	Leu	Ser	Glu	Ile	Met	Lys	Ser	Thr	Ser	Arg	
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gat	gcc	gtg	ctg	tat	ttc	tct	gaa	tcc	ctc	gtg	ccc	acg	gca	agg	aag	6077
Asp	Ala	Val	Leu	Tyr	Phe	Ser	Glu	Ser	Leu	Val	Pro	Thr	Ala	Arg	Lys	
1799					1804					1809					1814	
gct	ttg	tgt	gac	cca	ctg	gag	gag	gtc	aga	gag	gcg	gca	gcc	aag	act	6125
Ala	Leu	Cys	Asp	Pro	Leu	Glu	Glu	Val	Arg	Glu	Ala	Ala	Ala	Lys	Thr	
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ttc	gag	cag	ctg	cat	tcc	acc	atc	ggc	cac	cag	gct	ctg	gag	gac	att	6173
Phe	Glu	Gln	Leu	His	Ser	Thr	Ile	Gly	His	Gln	Ala	Leu	Glu	Asp	Ile	
1831					1836					1841					1846	
ctc	cca	ttt	tta	cta	aag	cag	ctg	gat	gac	gag	gag	gtg	tca	gag	ttt	6221
Leu	Pro	Phe	Leu	Leu	Lys	Gln	Leu	Asp	Asp	Glu	Glu	Val	Ser	Glu	Phe	
1847					1852					1857					1862	
gcc	ttg	gat	ggt	ctg	aag	caa	gtc	atg	gct	att	aag	agt	cgt	gtg	gtg	6269
Ala	Leu	Asp	Gly	Leu	Lys	Gln	Val	Met	Ala	Ile	Lys	Ser	Arg	Val	Val	

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Leu Pro Tyr Leu Val Pro Lys Leu Thr Thr Pro Pro Val Asn Thr Arg				
1879	1884	1889	1894	
gtg ctg gct ttc ctt tcg tca gtg gct ggt gat gcc ctc acc cgt cat				6365
Val Leu Ala Phe Leu Ser Ser Val Ala Gly Asp Ala Leu Thr Arg His				
1895	1900	1905	1910	
ctt ggc gtg atc ctc cca gcg gtc atg ctg gcc ctg aag gaa aag ctt				6413
Leu Gly Val Ile Leu Pro Ala Val Met Leu Ala Leu Lys Glu Lys Leu				
1911	1916	1921	1926	
ggg acc cca gat gag cag ctg gag atg gcc aat tgt cag gct gtg atc				6461
Gly Thr Pro Asp Glu Gln Leu Glu Met Ala Asn Cys Gln Ala Val Ile				
1927	1932	1937	1942	
ctc tcc gta gag gat gac aca ggg cac cgg atc atc atc gag gat ctg				6509
Leu Ser Val Glu Asp Asp Thr Gly His Arg Ile Ile Ile Glu Asp Leu				
1943	1948	1953	1958	
ctg gag gcc acc cgc agc cct gag gtg ggc atg agg caa gct gct gcc				6557
Leu Glu Ala Thr Arg Ser Pro Glu Val Gly Met Arg Gln Ala Ala Ala				
1959	1964	1969	1974	
atc atc ctc aac atc tac tgt tcc cgc tca aag gct gac tac acc agc				6605
Ile Ile Leu Asn Ile Tyr Cys Ser Arg Ser Lys Ala Asp Tyr Thr Ser				
1975	1980	1985	1990	
cac ctg cgg agc ctg gtc tcg ggc ctg atc cgc ctc ttc aat gac tcc				6653
His Leu Arg Ser Leu Val Ser Gly Leu Ile Arg Leu Phe Asn Asp Ser				
1991	1996	2001	2006	
agc cct gtg gtt ctg gag gag agc tgg gat gcc cta aat gcc atc act				6701
Ser Pro Val Val Leu Glu Glu Ser Trp Asp Ala Leu Asn Ala Ile Thr				
2007	2012	2017	2022	
aag aag ctg gat gct ggc aac cag ttg gca ctc att gaa gag ctg cac				6749
Lys Lys Leu Asp Ala Gly Asn Gln Leu Ala Leu Ile Glu Glu Leu His				
2023	2028	2033	2038	
aag gaa atc cgg ctc ata ggg aac gag agc aaa ggc gag cat gtg cca				6797
Lys Glu Ile Arg Leu Ile Gly Asn Glu Ser Lys Gly Glu His Val Pro				
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gga ttc tgc ctc ccg aag aag gga gtg acc tcc atc ctt cca gtg ttg				6845
Gly Phe Cys Leu Pro Lys Lys Gly Val Thr Ser Ile Leu Pro Val Leu				
2055	2060	2065	2070	
cgg gaa gga gtc ctg act ggc agc cct gag cag aag gag gag gca gcc				6893
Arg Glu Gly Val Leu Thr Gly Ser Pro Glu Gln Lys Glu Glu Ala Ala				
2071	2076	2081	2086	
aaa gcc tta ggc ttg gta atc cgc ctg acc tcg gct gac gcc ctg agg				6941
Lys Ala Leu Gly Leu Val Ile Arg Leu Thr Ser Ala Asp Ala Leu Arg				
2087	2092	2097	2102	

ccc tcc gtg gtc agc atc act ggc cct ctg atc cgc atc ctg ggg gac	6989
Pro Ser Val Val Ser Ile Thr Gly Pro Leu Ile Arg Ile Leu Gly Asp	
2103 2108 2113 2118	
agg ttc agc tgg aat gtg aag gcg gct ctg ctc gag aca ctc agc ctc	7037
Arg Phe Ser Trp Asn Val Lys Ala Ala Leu Leu Glu Thr Leu Ser Leu	
2119 2124 2129 2134	
ttg ttg gct aag gtt ggg att gcc ctg aag ccc ttc ctg ccc cag ctg	7085
Leu Leu Ala Lys Val Gly Ile Ala Leu Lys Pro Phe Leu Pro Gln Leu	
2135 2140 2145 2150	
cag acc act ttc acc aaa gcc ctg cag gac tcc aac cgg ggg gtg cgc	7133
Gln Thr Thr Phe Thr Lys Ala Leu Gln Asp Ser Asn Arg Gly Val Arg	
2151 2156 2161 2166	
ctg aag gcc gca gat gct ctg ggg aag ctc att tcc atc cac att aag	7181
Leu Lys Ala Ala Asp Ala Leu Gly Lys Leu Ile Ser Ile His Ile Lys	
2167 2172 2177 2182	
gtg gac ccc ctc ttc aca gag ctg ctc aat ggc atc cgc gcc atg gag	7229
Val Asp Pro Leu Phe Thr Glu Leu Leu Asn Gly Ile Arg Ala Met Glu	
2183 2188 2193 2198	
gac cca ggt gtc agg gac acc atg ctg cag gcc ctg agg ttt gtg att	7277
Asp Pro Gly Val Arg Asp Thr Met Leu Gln Ala Leu Arg Phe Val Ile	
2199 2204 2209 2214	
cag gga gca ggg gcc aaa gtg gat gcc gtc atc cgg aaa aac atc gtc	7325
Gln Gly Ala Gly Ala Lys Val Asp Ala Val Ile Arg Lys Asn Ile Val	
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Ser Leu Leu Leu Ser Met Leu Gly His Asp Glu Asp Asn Thr Arg Ile	
2231 2236 2241 2246	
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Ser Ser Ala Gly Cys Leu Gly Glu Leu Cys Ala Phe Leu Thr Glu Glu	
2247 2252 2257 2262	
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Glu Leu Ser Ala Val Leu Gln Gln Cys Leu Leu Ala Asp Val Ser Gly	
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Ile Asp Trp Met Val Arg His Gly Arg Ser Leu Ala Leu Ser Val Ala	
2279 2284 2289 2294	
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Val Asn Val Ala Pro Gly Arg Leu Cys Ala Gly Arg Tyr Ser Ser Asp	
2295 2300 2305 2310	
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Val Gln Glu Met Ile Leu Ser Ser Ala Thr Ala Asp Arg Ile Pro Ile	
2311 2316 2321 2326	

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Ala Val Ser Gly Val Arg Gly Met Gly Phe Leu Met Arg His His Ile	
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Glu Thr Gly Gly Gly Gln Leu Pro Ala Lys Leu Ser Ser Leu Phe Val	
2343 2348 2353 2358	
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Lys Cys Leu Gln Asn Pro Ser Ser Asp Ile Arg Leu Val Ala Glu Lys	
2359 2364 2369 2374	
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Met Ile Trp Trp Ala Asn Lys Asp Pro Leu Pro Pro Leu Asp Pro Gln	
2375 2380 2385 2390	
gcc atc aag ccc atc ctg aag gct ctt ctt gac aac acc aag gat aag	7853
Ala Ile Lys Pro Ile Leu Lys Ala Leu Leu Asp Asn Thr Lys Asp Lys	
2391 2396 2401 2406	
aac acc gtg gtc agg gcc tac agc gac cag gca att gtc aac ctc ctc	7901
Asn Thr Val Val Arg Ala Tyr Ser Asp Gln Ala Ile Val Asn Leu Leu	
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Lys Met Arg Gln Gly Glu Glu Val Phe Gln Ser Leu Ser Lys Ile Leu	
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gat gtg gcc agt ttg gag gtg ctg aac gag gtt aac cga agg tcc ctg	7997
Asp Val Ala Ser Leu Glu Val Leu Asn Glu Val Asn Arg Arg Ser Leu	
2439 2444 2449 2454	
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Lys Lys Leu Ala Ser Gln Ala Asp Ser Thr Glu Gln Val Asp Asp Thr	
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Ile Leu Thr *	
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8649

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 Met Glu Gly Ile Pro Gly Phe Pro Gly
 1 5

aac cga gga tta atg ggc caa aag gga gaa att ggg cct cca gga cag 159
 Asn Arg Gly Leu Met Gly Gln Lys Gly Glu Ile Gly Pro Pro Gly Gln
 10 15 20 25

caa gga aaa aaa gga gcc cca ggg atg cct ggt tta atg gga agc aat 207
 Gln Gly Lys Lys Gly Ala Pro Gly Met Pro Gly Leu Met Gly Ser Asn
 26 31 36 41

ggc tca cca ggc cag cct gga aca ccg gga tct aag gga agc aaa ggt 255
 Gly Ser Pro Gly Gln Pro Gly Thr Pro Gly Ser Lys Gly Ser Lys Gly
 42 47 52 57

gaa cct gga att caa ggg atg cct ggg gct tct ggg ctc aag gga gaa 303
 Glu Pro Gly Ile Gln Gly Met Pro Gly Ala Ser Gly Leu Lys Gly Glu
 58 63 68 73

cca gga gca acg ggt tcc cca gga gaa cca gga tac atg ggt tta ccc 351
 Pro Gly Ala Thr Gly Ser Pro Gly Glu Pro Gly Tyr Met Gly Leu Pro
 74 79 84 89

ggg att caa gga aaa aag ggg gac aaa gga aat caa ggt gaa aaa ggt 399
 Gly Ile Gln Gly Lys Lys Gly Asp Lys Gly Asn Gln Gly Glu Lys Gly
 90 95 100 105

att cag ggt caa aag gga gaa aat gga aga cag gga att cca ggg caa 447
 Ile Gln Gly Gln Lys Gly Glu Asn Gly Arg Gln Gly Ile Pro Gly Gln
 106 111 116 121

cag gga att caa ggc cat cat ggt gca aaa gga gag aga ggt gaa aag 495
 Gln Gly Ile Gln Gly His His Gly Ala Lys Gly Glu Arg Gly Glu Lys
 122 127 132 137

gga gaa cct ggt gtc cga ggt gcc att gga tca aaa gga gaa tct ggg 543
 Gly Glu Pro Gly Val Arg Gly Ala Ile Gly Ser Lys Gly Glu Ser Gly
 138 143 148 153

gtg gat ggc ttg atg ggg ccc gca ggt cct aag ggg caa cct ggg gat	591
Val Asp Gly Leu Met Gly Pro Ala Gly Pro Lys Gly Gln Pro Gly Asp	
154 159 164 169	
cca ggt cct cag gga ccc cca ggt ttg gat ggg aag ccc gga aga gag	639
Pro Gly Pro Gln Gly Pro Pro Gly Leu Asp Gly Lys Pro Gly Arg Glu	
170 175 180 185	
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Phe Ser Glu Gln Phe Ile Arg Gln Val Cys Thr Asp Val Ile Arg Ala	
186 191 196 201	
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Gln Leu Pro Val Leu Leu Gln Ser Gly Arg Ile Arg Asn Cys Asp His	
202 207 212 217	
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Cys Leu Ser Gln His Gly Ser Pro Gly Ile Pro Gly Pro Pro Gly Pro	
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Ile Gly Pro Glu Gly Pro Arg Gly Leu Pro Gly Leu Pro Gly Arg Asp	
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Gly Val Pro Gly Leu Val Gly Val Pro Gly Arg Pro Gly Val Arg Gly	
250 255 260 265	
tta aaa ggc cta cca gga aga aat ggg gaa aaa ggg agc caa ggg ttt	927
Leu Lys Gly Leu Pro Gly Arg Asn Gly Glu Lys Gly Ser Gln Gly Phe	
266 271 276 281	
ggg tat cct gga gaa caa ggt cct cct ggt ccc cca ggt cca gag ggc	975
Gly Tyr Pro Gly Glu Gln Gly Pro Pro Gly Pro Pro Gly Pro Glu Gly	
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cct cct gga ata agc aaa gaa ggt cct cca gga gac cca ggt ctc cct	1023
Pro Pro Gly Ile Ser Lys Glu Gly Pro Pro Gly Asp Pro Gly Leu Pro	
298 303 308 313	
ggc aaa gat gga gac cat gga aaa cct gga atc caa ggg caa cca ggc	1071
Gly Lys Asp Gly Asp His Gly Lys Pro Gly Ile Gln Gly Gln Pro Gly	
314 319 324 329	
ccc cca ggc atc tgc gac cca tca cta tgt ttt agt gta att gcc aga	1119
Pro Pro Gly Ile Cys Asp Pro Ser Leu Cys Phe Ser Val Ile Ala Arg	
330 335 340 345	
aga gat ccg ttc aga aaa gga cca aac tat tag tgtctgat gcctcattca	1170
Arg Asp Pro Phe Arg Lys Gly Pro Asn Tyr *	
346 351 356	
gcagcctagg catggtgctt tttctgtggt cttttgcatc tcaggaagat aaccaacagt	1230
aatcccttga aaagaaactt aagtacctcg gcgttttttat tttttttttt ttatggaaaa	1290

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 ctttcccttc agagaaccag tgtccctgtg actccacca ctcatctggc caccgttgcc 240
 ctgacctgcc aggagcctgg agaag atg aag gca tcc gtg gtt ctc tcc ctc 292
 Met Lys Ala Ser Val Val Leu Ser Leu
 1 5

ctt ggc tac ctg gtg gtt cca agt ggt gct tac atc ttg ggg cgt tgc	340
Leu Gly Tyr Leu Val Val Pro Ser Gly Ala Tyr Ile Leu Gly Arg Cys	
10 15 20 25	
aca gtg gct aag aaa ctc cac gat gga ggc ctg gat tat ttt gag ggc	388
Thr Val Ala Lys Lys Leu His Asp Gly Gly Leu Asp Tyr Phe Glu Gly	
26 31 36 41	
tat agc ctt gag aac tgg gtg tgc ctg gcc tac ttc gag agc aag ttc	436
Tyr Ser Leu Glu Asn Trp Val Cys Leu Ala Tyr Phe Glu Ser Lys Phe	
42 47 52 57	
aac ccc atg gcc atc tac gag aac aca cgt gag ggc tac act ggc ttt	484
Asn Pro Met Ala Ile Tyr Glu Asn Thr Arg Glu Gly Tyr Thr Gly Phe	
58 63 68 73	
ggc ctc ttt cag atg cgt ggc agt gac tgg tgt ggc gac cat ggc agg	532
Gly Leu Phe Gln Met Arg Gly Ser Asp Trp Cys Gly Asp His Gly Arg	
74 79 84 89	
aac cgc tgc cat atg tca tgt tcc gct tta ctg aat cct aat tta gag	580
Asn Arg Cys His Met Ser Cys Ser Ala Leu Leu Asn Pro Asn Leu Glu	
90 95 100 105	
aag aca att aaa tgt gcc aag acc att gta aaa gga aaa gaa ggg atg	628
Lys Thr Ile Lys Cys Ala Lys Thr Ile Val Lys Gly Lys Glu Gly Met	
106 111 116 121	
gga gca tgg ccc acc tgg tcc cgg tac tgc cag tac tcc gat acc ctg	676
Gly Ala Trp Pro Thr Trp Ser Arg Tyr Cys Gln Tyr Ser Asp Thr Leu	
122 127 132 137	
gca cgg tgg ctg gat ggt tgc aag ctg tag c cgcttgcattg gcccttgcag	727
Ala Arg Trp Leu Asp Gly Cys Lys Leu *	
138 143	
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	Met Leu Arg Ala Gly Trp	
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ctc cgg ggc gcg gcg gcg ctg gcg ctg ctg ctg gcg gcc cga gtg gtg		161
Leu Arg Gly Ala Ala Ala Leu Ala Leu Leu Leu Ala Ala Arg Val Val		
7 12 17 22		
gcg gcg ttc gag ccc atc acc gtg ggc cta gcc atc ggg gcc gcg tcg		209
Ala Ala Phe Glu Pro Ile Thr Val Gly Leu Ala Ile Gly Ala Ala Ser		
23 28 33 38		
gcc atc acc ggc tac ctg tcc tac aat gac atc tac tgc cgc ttc gcc		257
Ala Ile Thr Gly Tyr Leu Ser Tyr Asn Asp Ile Tyr Cys Arg Phe Ala		
39 44 49 54		
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Glu Cys Cys Arg Glu Glu Arg Pro Leu Asn Ala Ser Ala Leu Lys Leu		
55 60 65 70		
gat ttg gag gag aag ctg ttt gga cag cat cta gcc acg gaa gtg att		353
Asp Leu Glu Glu Lys Leu Phe Gly Gln His Leu Ala Thr Glu Val Ile		
71 76 81 86		
ttc aag gcg ctg act ggc ttc agg aac aac aaa aat ccc aag aaa cca		401
Phe Lys Ala Leu Thr Gly Phe Arg Asn Asn Lys Asn Pro Lys Lys Pro		
87 92 97 102		
ctg acc ctt tcc tta cac ggc tgg gct ggc aca ggc aag aat ttt gtc		449
Leu Thr Leu Ser Leu His Gly Trp Ala Gly Thr Gly Lys Asn Phe Val		
103 108 113 118		
agt caa att gtg gct gaa aat ctt cac cca aaa ggt ctg aag agt aac		497
Ser Gln Ile Val Ala Glu Asn Leu His Pro Lys Gly Leu Lys Ser Asn		
119 124 129 134		
ttt gtc cac ctg ttt gta tgc act ctg cac ttc cct cat gag cag aag		545
Phe Val His Leu Phe Val Ser Thr Leu His Phe Pro His Glu Gln Lys		
135 140 145 150		
ata aaa ctg tac ccg gac cag tta cag aag tgg atc cgc ggt aat gtg		593
Ile Lys Leu Tyr Pro Asp Gln Leu Gln Lys Trp Ile Arg Gly Asn Val		
151 156 161 166		
agt gca tgt gcg aac tct gtt ttc ata ttt gac gag atg gat aaa ttg		641
Ser Ala Cys Ala Asn Ser Val Phe Ile Phe Asp Glu Met Asp Lys Leu		
167 172 177 182		
cac ccc ggg atc att gac gca atc aag ccg ttt cta gac tac tac gag		689
His Pro Gly Ile Ile Asp Ala Ile Lys Pro Phe Leu Asp Tyr Tyr Glu		
183 188 193 198		
cag gtt gac gga gtg tat tac cgc aaa gcc atc ttc atc ttt ctg agc		737
Gln Val Asp Gly Val Tyr Tyr Arg Lys Ala Ile Phe Ile Phe Leu Ser		
199 204 209 214		
aat gca ggc ggg gac ctt ata act aag acg gct ctt gac ttt tgg cgg		785

Asn Ala Gly Gly Asp Leu Ile Thr Lys Thr Ala Leu Asp Phe Trp Arg	
215 220 225 230	
gcc gga aga aag agg gaa gac att cag ctg aag gac ctg gaa cct gta	833
Ala Gly Arg Lys Arg Glu Asp Ile Gln Leu Lys Asp Leu Glu Pro Val	
231 236 241 246	
ctg tct gtc gga gtc ttc aat aat aaa cac agt ggc ctg tgg cac agt	881
Leu Ser Val Gly Val Phe Asn Asn Lys His Ser Gly Leu Trp His Ser	
247 252 257 262	
gga ctg atc gac aaa aac ctc att gat tac ttt atc ccc ttc ctg cct	929
Gly Leu Ile Asp Lys Asn Leu Ile Asp Tyr Phe Ile Pro Phe Leu Pro	
263 268 273 278	
ttg gag tac aga cat gtg aaa atg tgt gtg atg gcc gag atg agg gcc	977
Leu Glu Tyr Arg His Val Lys Met Cys Val Met Ala Glu Met Arg Ala	
279 284 289 294	
cgt ggt tct gcc ata gat gaa gac att gtc aca aga gtg gca gag gaa	1025
Arg Gly Ser Ala Ile Asp Glu Asp Ile Val Thr Arg Val Ala Glu Glu	
295 300 305 310	
atg acg ttt ttt ccc cag aga cga gaa aat cta ctc aga caa ggg ctg	1073
Met Thr Phe Phe Pro Gln Arg Arg Glu Asn Leu Leu Arg Gln Gly Leu	
311 316 321 326	
caa gac tgt gca gtc gcg gct gga ttt cca ctg agc tcc tat cca gat	1121
Gln Asp Cys Ala Val Ala Ala Gly Phe Pro Leu Ser Ser Tyr Pro Asp	
327 332 337 342	
ggg gta gga gac agc tgg gag gct ccg cac gcc aga ggc ctt gcc ttt	1169
Gly Val Gly Asp Ser Trp Glu Ala Pro His Ala Arg Gly Leu Ala Phe	
343 348 353 358	
cag aag aac cct gaa gac cgc ttt ggg gtt ttg cct gtt tgc acc tta	1217
Gln Lys Asn Pro Glu Asp Arg Phe Gly Val Leu Pro Val Cys Thr Leu	
359 364 369 374	
gac ttt tgg gta tag aatctttttt ttgagaagag gtctcactcc gtcattccaag	1272
Asp Phe Trp Val *	
375	
ctggagtgca gtggtgcaat cctcaactca ctgcaacctc cgctcccggg ttgagtgatt	1332
ctcatgcctc agcctccga gtagctggga ttacaggcat gagccactgt gccagctgg	1392
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gagtccaggg acttgcctgca ggctgggggg cactgggtgg ttctcaccag caggctgcgg	1692

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 atctgtctca taatcacagc acagctgcag acacaacaac gtgcagcatt ttttacataa 2592
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 gaaaaaaaca ccaaggtgac gtttaaaatt tttagtacat atcctcaaat tggagctaag 2712
 ttatacttct tttataacct tttgggcac tggtcgagag aagacaagat tttctctatt 2772
 tacagtgagg caataaatat gtttgccacc tttaaaaaaa aaaaa 2817

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 acgcgtccgg attgggaaaa caacgat atg gca gga gcc agt ctt ggg gcc 111
 Met Ala Gly Ala Ser Leu Gly Ala
 1 5

cgc ttc tac cgg cag atc aaa aga cat ccg ggg atc atc ccg atg atc	159
Arg Phe Tyr Arg Gln Ile Lys Arg His Pro Gly Ile Ile Pro Met Ile	
9 14 19 24	
ggc tta atc tgc ctg ggc atg ggc agc gct gcg ctt tac ttg ctg cga	207
Gly Leu Ile Cys Leu Gly Met Gly Ser Ala Ala Leu Tyr Leu Leu Arg	
25 30 35 40	
ctc gcc ctt cgc agc ccc gac gtc tgc tgg gac aga aag aac aac ccg	255
Leu Ala Leu Arg Ser Pro Asp Val Cys Trp Asp Arg Lys Asn Asn Pro	
41 46 51 56	
gag ccc tgg aac cgc ctg agc ccc aat gac caa tac aag ttc ctt gca	303
Glu Pro Trp Asn Arg Leu Ser Pro Asn Asp Gln Tyr Lys Phe Leu Ala	
57 62 67 72	
gtt tcc act gac tat aag aag ctg aag aag gac cgg cca gac ttc taa	351
Val Ser Thr Asp Tyr Lys Lys Leu Lys Lys Asp Arg Pro Asp Phe *	
73 78 83 88	
gccaggctgg gctgccagtg ccatgcaagc cacagccagc cagcccatcc actttttcca	411
ctctctccccg caggccccaa ggcatactc cggccaccct gtcccgctac tgcttacaca	471
ggccgggttc ccacgcagag gggaggctgc tccacccta ctctctccc ttgctcccag	531
cagcgggaagc gcctctgacc cttggcttga gtccacgtg ggggaggagg aggcaggcag	591
caccagcagg ggtccacca gagcccagac cagccctct gccctcctac ccgggcctcg	651
aagggtgtgg cacaggctac gtgttgagcg tggcctacgt gagccaacaa gaagcagggg	711
cctctgagtg ccaagcgacg tggcgggctc cacgttagcc caggtctctga gagccagccc	771
aggggcggcg ctgctcagct tgggctggtc cagggcctgc ccaggctggg gcacctttgc	831
ctctgagge gcagcgcact cctcccctgc ccaagcctac tgctcccgc tgccgccagt	891
accccccca gcccacacc tgggcctccc cctgccact cctcctcttg ctcccctctg	951
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aaaa	1015

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<220>
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<400> 244

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ctctctacag agacgcggac cccagac atg agg agg ctc ctc ctg gtc acc 111
Met Arg Arg Leu Leu Leu Val Thr
1 5

agc ctg gtg gtt gtg ctg ctg tgg gag gca ggt gca gtc cca gca ccc 159
Ser Leu Val Val Val Leu Leu Trp Glu Ala Gly Ala Val Pro Ala Pro
9 14 19 24

aag gtc cct atc aag atg caa gtc aaa cac tgg ccc tca gag cag gac 207
Lys Val Pro Ile Lys Met Gln Val Lys His Trp Pro Ser Glu Gln Asp
25 30 35 40

cca gag aag gcc tgg ggc gcc cgt gtg gtg gag cct ccg gag aag gac 255
Pro Glu Lys Ala Trp Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp
41 46 51 56

gac cag ctg gtg gtg ctg ttc cct gtc cag aag ccg aaa ctc ttg acc 303
Asp Gln Leu Val Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr
57 62 67 72

acc gag gag aag cca cga ggc acc aag gcc tgg atg gag acc gag gac 351
Thr Glu Glu Lys Pro Arg Gly Thr Lys Ala Trp Met Glu Thr Glu Asp
73 78 83 88

acc ctg ggc cgt gtc ctg agt ccc gag ccc gac cat gac agc ctg tac 399
Thr Leu Gly Arg Val Leu Ser Pro Glu Pro Asp His Asp Ser Leu Tyr
89 94 99 104

cac cct ccg cct gag gag gac cag ggc gag gag agg ccc cgg ttg tgg 447
His Pro Pro Pro Glu Glu Asp Gln Gly Glu Glu Arg Pro Arg Leu Trp
105 110 115 120

gtg atg cca aat cac cag gtg ctc ctg gga ccg gag gaa gac caa gac 495
Val Met Pro Asn His Gln Val Leu Leu Gly Pro Glu Glu Asp Gln Asp
121 126 131 136

cac atc tac cac ccc cag tag gg ctccaggggc catcactgcc cccgcctgt 548
His Ile Tyr His Pro Gln *
137 142

ccaagggccc aggctgttgg gactgggacc ctccctaccc tgccccagct agacaaataa 608

acccagcag gccgggaaaa aaaaaaaa 636

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<400> 245

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ctctctacag agacgcggac cccagac atg agg agg ctc ctc ctg gtc acc 111
Met Arg Arg Leu Leu Leu Val Thr
1 5

agc ctg gtg gtt gtg ctg ctg tgg gag gca ggt gca gtc cca gca ccc 159
Ser Leu Val Val Val Leu Leu Trp Glu Ala Gly Ala Val Pro Ala Pro
9 14 19 24

aag gtc cct atc aag atg caa gtc aaa cac tgg ccc tca gag cag gac 207
Lys Val Pro Ile Lys Met Gln Val Lys His Trp Pro Ser Glu Gln Asp
25 30 35 40

cca gag aag gcc tgg ggc gcc cgt gtg gtg gag cct ccg gag aag gac 255
Pro Glu Lys Ala Trp Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp
41 46 51 56

gac cag ctg gtg gtg ctg ttc cct gtc cag aag ccg aaa ctc ttg acc 303
Asp Gln Leu Val Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr
57 62 67 72

acc gag gag aag cca cga ggt cag ggc agg ggc ccc atc ctt cca ggc 351
Thr Glu Glu Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly
73 78 83 88

acc aag gcc tgg atg gag acc gag gac acc ctg ggc cgt gtc ctg agt 399
Thr Lys Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser
89 94 99 104

ccc gag ccc gac cat gac agc ctg tac cac cct ccg cct gag gag gac 447
Pro Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp
105 110 115 120

cag ggc gag gag agg ccc cgg ttg tgg gtg atg cca aat cac cag gtg 495
Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln Val
121 126 131 136

ctc ctg gga ccg gag gaa gac caa gac cac atc tac cac ccc cag tag 543
Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro Gln *
137 142 147 152

ggctccaggg gccatcactg cccccgcct gtcccaaggc ccaggctgtt gggactggga 603

ccctccctac cctgccccag ctagacaaat aaaccccagc aggcggggaa aaaaaaaaaa 663

<210> 246

<211> 3399

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (13) .. (1599)

<400> 246

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	1 5 10	
tcc gtc gac ggc ctc acg ctc agc ccg gac ccg gag gag cgg cct ggg	96	
Ser Val Asp Gly Leu Thr Leu Ser Pro Asp Pro Glu Glu Arg Pro Gly		
13 18 23 28		
gcg gag ggc gcc ccg ctg ctg ccg cca ccg ctg cca ccg ccc tcg cca	144	
Ala Glu Gly Ala Pro Leu Leu Pro Pro Pro Leu Pro Pro Pro Ser Pro		
29 34 39 44		
cct gga tcc ggt cgc ggc ccg ggc gcc tca ggg gag cag ccc gag ccc	192	
Pro Gly Ser Gly Arg Gly Pro Gly Ala Ser Gly Glu Gln Pro Glu Pro		
45 50 55 60		
ggg gag gcg gcg gct ggg ggc gcg gcg gag gag gcg cgg cgg ctg gag	240	
Gly Glu Ala Ala Ala Gly Gly Ala Ala Glu Glu Ala Arg Arg Leu Glu		
61 66 71 76		
cag cgc tgg ggt ttc ggc ctg gag gag ttg tac ggc ctg gca ctg cgc	288	
Gln Arg Trp Gly Phe Gly Leu Glu Glu Leu Tyr Gly Leu Ala Leu Arg		
77 82 87 92		
ttc ttc aaa gaa aaa gat ggc aaa gca ttt cat cca act tat gaa gaa	336	
Phe Phe Lys Glu Lys Asp Gly Lys Ala Phe His Pro Thr Tyr Glu Glu		
93 98 103 108		
aaa ttg aag ctt gtg gca ctg cat aag caa gtt ctt atg ggc cca tat	384	
Lys Leu Lys Leu Val Ala Leu His Lys Gln Val Leu Met Gly Pro Tyr		
109 114 119 124		
aat cca gac act tgt cct gag gtt gga ttc ttt gat gtg ttg ggg aat	432	
Asn Pro Asp Thr Cys Pro Glu Val Gly Phe Phe Asp Val Leu Gly Asn		
125 130 135 140		
gac agg agg aga gaa tgg gca gcc ctg gga aac atg tct aaa gag gat	480	
Asp Arg Arg Arg Glu Trp Ala Ala Leu Gly Asn Met Ser Lys Glu Asp		
141 146 151 156		
gcc atg gtg gag ttt gtc aag ctc tta aat agg tgt tgc cat ctc ttt	528	
Ala Met Val Glu Phe Val Lys Leu Leu Asn Arg Cys Cys His Leu Phe		
157 162 167 172		
tca aca tat gtt gcg tcc cac aaa ata gag aag gaa gag caa gac aaa	576	
Ser Thr Tyr Val Ala Ser His Lys Ile Glu Lys Glu Glu Gln Asp Lys		
173 178 183 188		
aaa agg aag gag gaa gag gag cga agg cat cgt gaa gag gaa gaa aga	624	
Lys Arg Lys Glu Glu Glu Glu Arg Arg His Arg Glu Glu Glu Glu Arg		
189 194 199 204		
gaa cgt ctg caa aag gag gaa gag aaa cgt agg aga gaa gaa gag gaa	672	

Glu Arg Leu Gln Lys	Glu Glu Glu Lys Arg Arg Arg Glu Glu Glu Glu	
205	210 215 220	
agg ctt cga cgg gag	gaa gag gaa agg aga cgg ata gaa gaa gaa agg	720
Arg Leu Arg Arg Glu	Glu Glu Glu Arg Arg Arg Ile Glu Glu Glu Arg	
221	226 231 236	
ctt cgg ttg gag cag	caa aag cag cag ata atg gca gct tta aac tcc	768
Leu Arg Leu Glu Gln	Gln Lys Gln Gln Ile Met Ala Ala Leu Asn Ser	
237	242 247 252	
cag act gcc gtg cag	ttc cag cag tat gca gcc caa cag tat cca ggg	816
Gln Thr Ala Val Gln	Phe Gln Gln Tyr Ala Ala Gln Gln Tyr Pro Gly	
253	258 263 268	
aac tac gaa cag cag	caa att ctc atc cgc cag ttg cag gag caa cac	864
Asn Tyr Glu Gln Gln	Gln Ile Leu Ile Arg Gln Leu Gln Glu Gln His	
269	274 279 284	
tat cag cag tac atg	cag cag ttg tat caa gtc cag ctt gca cag caa	912
Tyr Gln Gln Tyr Met	Gln Gln Leu Tyr Gln Val Gln Leu Ala Gln Gln	
285	290 295 300	
cag gca gca tta cag	aaa caa cag gaa gta gta gtg gct ggg tct tcc	960
Gln Ala Ala Leu Gln	Lys Gln Gln Glu Val Val Val Ala Gly Ser Ser	
301	306 311 316	
ttg cct aca tca tca	aaa gtg aat gca act gta cca agt aat atg atg	1008
Leu Pro Thr Ser Ser	Lys Val Asn Ala Thr Val Pro Ser Asn Met Met	
317	322 327 332	
tca gtt aat gga cag	gcc aaa aca cac act gac agc tcc gaa aaa gaa	1056
Ser Val Asn Gly Gln	Ala Lys Thr His Thr Asp Ser Ser Glu Lys Glu	
333	338 343 348	
ctg gaa cca gaa gct	gca gaa gaa gcc ctg gag aat gga cca aaa gaa	1104
Leu Glu Pro Glu Ala	Ala Glu Glu Ala Leu Glu Asn Gly Pro Lys Glu	
349	354 359 364	
tct ctt cca gta ata	gca gct cca tcc atg tgg aca cga cct cag atc	1152
Ser Leu Pro Val Ile	Ala Ala Pro Ser Met Trp Thr Arg Pro Gln Ile	
365	370 375 380	
aaa gac ttc aaa gag	aag att cag cag gat gca gat tcc gtg att aca	1200
Lys Asp Phe Lys Glu	Lys Ile Gln Gln Asp Ala Asp Ser Val Ile Thr	
381	386 391 396	
gtg ggc cga gga gaa	gtg gtc act gtt cga gta ccc acc cat gaa gaa	1248
Val Gly Arg Gly Glu	Val Val Thr Val Arg Val Pro Thr His Glu Glu	
397	402 407 412	
gga tca tat ctc ttt	tgg gaa ttt gcc aca gac aat tat gac att ggg	1296
Gly Ser Tyr Leu Phe	Trp Glu Phe Ala Thr Asp Asn Tyr Asp Ile Gly	
413	418 423 428	
ttt ggg gtg tat ttt	gaa tgg aca gac tct cca aac act gct gtc agc	1344
Phe Gly Val Tyr Phe	Glu Trp Thr Asp Ser Pro Asn Thr Ala Val Ser	

429	434	439	444	
gtg cat gtc agt gag tcc agc gat gac gac gag gag gaa gaa gaa aac				1392
Val His Val Ser Glu Ser Ser Asp Asp Asp Glu Glu Glu Glu Glu Asn				
445	450	455	460	
atc ggt tgt gaa gag aaa gcc aaa aag aat gcc aac aag cct ttg ctg				1440
Ile Gly Cys Glu Glu Lys Ala Lys Lys Asn Ala Asn Lys Pro Leu Leu				
461	466	471	476	
gat gag att gtg cct gtg tac cga cgg gac tgt cat gag gag gtg tat				1488
Asp Glu Ile Val Pro Val Tyr Arg Arg Asp Cys His Glu Glu Val Tyr				
477	482	487	492	
gct ggc agc cat caa tat cca ggg aga gga gtc tat ctc ctc aag ttt				1536
Ala Gly Ser His Gln Tyr Pro Gly Arg Gly Val Tyr Leu Leu Lys Phe				
493	498	503	508	
gac aac tcc tac tct ttg tgg cgg tca aaa tca gtc tac tac aga gtc				1584
Asp Asn Ser Tyr Ser Leu Trp Arg Ser Lys Ser Val Tyr Tyr Arg Val				
509	514	519	524	
tat tat act aga taa aaatgttggt acaaagtctg gagtctaggg ttgggcagaa				1639
Tyr Tyr Thr Arg *				
525				
gatgacattt aatttgga aa tttcttttta cttttgtgga gcattagagt cacagtttac				1699
cttattgata ttggtctgat gggtttgtgaa ctcttctgtg gaatacaaat ttctttgaga				1759
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tgctgaccag cagagtcact agtggatgct gaagttacat gagctacatg ttaaataatt				1879
aaagtctcca aaataaaaca ccccaacggt gaccttacc ggctgatggt tagcccttg				1939
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ataagttaac aagtctatat caggtgcagc tggctttgat taaaggccat ttttaaaact				2059
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tcagaatgac ccagattggt tctgctttgg gtgcagctgt ttagttcaga gttatattac				2179
agagaattat tttctgagat aatcttaaac tagaatgttc aaaactaatt gataattgaa				2239
gtatcaagat acgtagaaca cctcagagat tttctttcag gaacttccac aaactttgaa				2299
tccttgtatc tttatttgggt attcatacta ctagtagcaa aatacagggt ttttgttttg				2359
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aaattaagga ttttataaac tcaaattggc acctactgaa ttaaaataca taaaatcatt				2479
taaatataat tcagcatatg ggaagtaaca ttgcactaat atggaaatca ctgccagaga				2539
cagtctatct tcttttaatt tgttactact tagtcacaaa cccacatta ttccagtttg				2599

gaattactta ttaaggagaa ttggaaatac atatgccccat gcttaaattt tatagcttta 2659
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 ttgtcaggct ctctgtcagc tttcatgtac atatgggata gaaaccatgg agttaggcac 3199
 ttctggatt ttttttatat gagaaaaatg ctgtatttaa aatgtaaaat aaacttttaa 3259
 aaagcaggca ctaatatata tttcttcag ctttgatta caaatttgtc cttgcacatg 3319
 ttaagatgaa ttatctccta aaaatatcat tgttcttggg agcagtgtat gttactttac 3379
 atagcagcgg ttctgtcat 3399

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (172)..(1824)

<400> 247
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 gttctctctt gcacagccta aaatgaccaa tgtgtgattt cagtggaata a atg gcg 177
 Met Ala
 1
 tcc aaa gtc aca gat gct ata gtc tgg tat caa aag aag att gga gca 225
 Ser Lys Val Thr Asp Ala Ile Val Trp Tyr Gln Lys Lys Ile Gly Ala
 3 8 13 18
 tat gaa caa caa ata tgg gaa aaa tct gtt gaa cag aga gaa atc aag 273
 Tyr Glu Gln Gln Ile Trp Glu Lys Ser Val Glu Gln Arg Glu Ile Lys
 19 24 29 34

ttt att aaa ctg ggg cta agg aat aaa cca aag aaa aca gca cat gtg	321
Phe Ile Lys Leu Gly Leu Arg Asn Lys Pro Lys Lys Thr Ala His Val	
35 40 45 50	
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Lys Ala Lys Pro Glu Ser Pro Trp Thr Ser Leu Pro Arg Lys Gly Ile	
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Val Ala Ala Ile Val Leu Phe Cys Ser Thr Ser Ser Pro His Ser Ile	
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Pro Leu Thr Glu Val Ile Gly Pro Ile Trp Leu Met Leu Leu Leu Gly	
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Ser Thr Gly Gly Lys Arg Arg Arg Lys Leu Arg Lys Ala Ala His Leu	
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Tyr Val Ser Leu Asp Gly Lys Lys Thr Val Lys Ser Gly Glu Asp Gly	
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Pro	Arg	Ile	Ala	Gln	Lys	Ile	Lys	Arg	Phe	Arg	Asn	Lys	Gln	Ala	Gln	
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Met	Lys	His	Ile	Phe	Thr	Glu	Asp	Ser	Val	Arg	Asp	Phe	Ala	Lys	Pro	
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Asn	Ala	Ile	Val	Tyr	His	Gly	Ser	Gln	Ile	Ser	Arg	Gln	Met	Ile	Gln	
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Gln	Tyr	Glu	Met	Val	Tyr	Arg	Asp	Ala	Gln	Gly	Asn	Pro	Leu	Ser	Gly	
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cag aac tct gtg gag Gln Asn Ser Val Glu 328	gag ctc ttc agt ttg Glu Leu Phe Ser Leu 333	tta aat ttt ctg gag cca Leu Asn Phe Leu Glu Pro 338		1179
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Ser Ile Gly Ile Leu Val Ser Phe Ser Ala Met Arg Leu Gly Glu Glu	
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Cys Gly Gln Gly Met Gly Gly Gly Phe His Ile Gln Gly Phe Trp His	
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Pro Arg Val Arg Lys Gln Thr Lys His Tyr Asn Ser Phe Glu Glu Asp	
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Val Val Tyr Asp Gln Glu Lys Lys Thr Phe Asp Trp Thr Gln Phe Arg				
1256	1261	1266	1271	
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Ile Ile Ser Arg Leu Asp Lys Lys Ser Asp Glu Ser Leu Glu Gln Tyr				
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Gln Leu Cys Arg Pro Ser Leu Tyr Leu Pro Val Trp Trp Glu Cys Gly				
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Pro	Asp	Val	Thr	Cys	Glu	Asn	Phe	Ile	Ser	Lys	Val	Gln	Asp	Val	Ile	
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Ser	Ile	Asn	His	Asp	Glu	Ser	Leu	Leu	Pro	Glu	Ser	Leu	Glu	Ser	Met	
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Gln	Ala	Asn	Ile	Lys	Asn	Gly	Lys	His	Leu	Leu	Met	Ser	Ile	Ser	Lys	
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Gly	Gln	Leu	Glu	Ala	Lys	Cys	Leu	Ala	Ser	Pro	Ser	Leu	Asn	Pro	Gly	
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Lys	Arg	Asn	Leu	Ser	Ser	Asp	Gln	Gln	Leu	Ile	Asp	Leu	Leu	Glu	Asn	</

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Gly Met Gly Glu Arg Pro Glu Val Leu His Leu Thr Glu Pro Thr Thr	
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Asn Ile Ser Arg Glu Lys Asn Gln Gly Phe Gln Asp Glu Thr Lys Lys	
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Pro Thr Tyr Pro Leu Glu Gly Ser Glu Leu Lys Ser Glu Asp Met Asp	
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Phe Glu Asn Lys Asp Asp Tyr Asp Arg Asp Gly Asn Cys His Ser Gln	
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Thr Ile Ala Gln Leu Leu Gln Glu Lys Thr Leu Tyr Ser Phe Ser Glu	
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Ser	Ser	Ser	Leu	Thr	Lys	His	Lys	Lys	Ile	His	Thr	Gly	Glu	Lys	Pro	
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Lys	Ile	His	Thr	Arg	Glu	Lys	Pro	Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	
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gct	ttt	cac	cta	tcc	aca	cac	ctt	act	aca	cat	aag	ata	ctt	cat	act	1915
Ala	Phe	His	Leu	Ser	Thr	His	Leu	Thr	Thr	His	Lys	Ile	Leu	His	Thr	
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579					584					589					594	
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Ser Arg His Glu Ile Ile His Thr Gly Glu Lys Pro *				
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Met Phe Pro Arg Val Ser Thr Phe Leu Pro Leu				
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cgc ccc ctt tcc cgc cac cct ttg tcc tct gga agc ccg gag aca tca				400
Arg Pro Leu Ser Arg His Pro Leu Ser Ser Gly Ser Pro Glu Thr Ser				
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Ala Ala Ala Ile Met Leu Leu Thr Val Arg His Gly Thr Val Arg Tyr				
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Arg Ser Ser Ala Leu Leu Ala Arg Thr Lys Asn Asn Ile Gln Arg Tyr				

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ttt ggc act aac agt gtg atc tgt agc aag aaa gat aag cag tct gtt				544
Phe Gly Thr Asn Ser Val Ile Cys Ser Lys Lys Asp Lys Gln Ser Val				
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cga act gag gag act tcc aag gag act tca gag agc caa gac agt gaa				592
Arg Thr Glu Glu Thr Ser Lys Glu Thr Ser Glu Ser Gln Asp Ser Glu				
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Lys Glu Asn Thr Lys Lys Asp Leu Leu Gly Ile Ile Lys Gly Met Lys				
92	97	102	107	
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Val Glu Leu Ser Thr Val Asn Val Arg Thr Thr Lys Pro Pro Lys Arg				
108	113	118	123	
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Arg Pro Leu Lys Ser Leu Glu Ala Thr Leu Gly Arg Leu Arg Arg Ala				
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aca gaa tat gct cca aag aag aga att gag ccc ctg agt cct gag ttg				784
Thr Glu Tyr Ala Pro Lys Lys Arg Ile Glu Pro Leu Ser Pro Glu Leu				
140	145	150	155	
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Val Ala Ala Ala Ser Ala Val Ala Asp Ser Leu Pro Phe Asp Lys Gln				
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Thr Thr Lys Ser Glu Leu Leu Ser Gln Leu Gln Gln His Glu Glu Glu				
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Ile Ile Ser Asp Met Lys Val Ala Arg Ser Ala Thr Ala Arg Val Arg				
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Ser Arg Pro Glu Leu Arg Ile Gln Phe Asp Glu Gly Tyr Asp Asn Tyr				
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Pro Gly Gln Glu Lys Thr Asp Asp Leu Lys Lys Arg Lys Asn Ile Phe				
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aca ggg aaa aga ctt aat att ttt gac atg atg gca gtt act aaa gaa				1120
Thr Gly Lys Arg Leu Asn Ile Phe Asp Met Met Ala Val Thr Lys Glu				
252	257	262	267	
gca cct gaa aca gac aca tca cct tca ctt tgg gat gtg gaa ttt gct				1168
Ala Pro Glu Thr Asp Thr Ser Pro Ser Leu Trp Asp Val Glu Phe Ala				
268	273	278	283	

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Ile Phe Leu Glu Lys His Leu Glu Ser Phe Pro Lys Gln Gly Pro Ile	
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Lys Lys Asp Lys Gln Ser Val Arg Thr Glu Glu Thr Ser Lys Glu Thr						
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Ser Glu Ser Gln Asp Ser Glu Lys Glu Asn Thr Lys Lys Asp Leu Leu						
76 81 86 91						
ggc att att aag ggc atg aaa gtt gaa tta agc aca gta aat gta cga						640
Gly Ile Ile Lys Gly Met Lys Val Glu Leu Ser Thr Val Asn Val Arg						
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Thr Thr Lys Pro Pro Lys Arg Arg Pro Leu Lys Ser Leu Glu Ala Thr						
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Glu Pro Leu Ser Pro Glu Leu Val Ala Ala Ser Ala Val Ala Asp						
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Ser Leu Pro Phe Asp Lys Gln Thr Thr Lys Ser Glu Leu Leu Ser Gln						
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Leu Trp Asp Val Glu Phe Ala Lys Gln Leu Ala Thr Val Asn Glu Gln	
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Lys Leu Trp Glu Phe Pro Ile Asn Asn Glu Ala Gly Phe Asp Asp Asp	
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gaattagtaa tacatttaag acaacaactc ctaacctttt tcttttcact cggtgaccat	1750
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accacgtgcg gccggaaggg aagtaacgtc agcctgagaa ctgagtagct gtactgtgtg	180
gcgcccttatt ctaggcactt gttgggcaga	231
atg tca cac ctg ccg atg aaa Met Ser His Leu Pro Met Lys	1 5
ctc ctg cgt aag aag atc gag aag cgg aac ctc aaa ttg cgg cag cgg	279
Leu Leu Arg Lys Lys Ile Glu Lys Arg Asn Leu Lys Leu Arg Gln Arg	8 13 18 23
aac cta aag ttt cag ggg gcc tca aat ctg acc cta tcg gaa act caa	327
Asn Leu Lys Phe Gln Gly Ala Ser Asn Leu Thr Leu Ser Glu Thr Gln	24 29 34 39
aat gga gat gta tct gaa gaa aca atg gga agt aga aag gtt aaa aaa	375
Asn Gly Asp Val Ser Glu Glu Thr Met Gly Ser Arg Lys Val Lys Lys	40 45 50 55
tca aaa caa aag ccc atg aat gtg ggc tta tca gaa act caa aat gga	423
Ser Lys Gln Lys Pro Met Asn Val Gly Leu Ser Glu Thr Gln Asn Gly	56 61 66 71
ggc atg tct caa gaa gca gtg gga aat ata aaa gtt aca aag tct ccc	471
Gly Met Ser Gln Glu Ala Val Gly Asn Ile Lys Val Thr Lys Ser Pro	72 77 82 87

cag aaa tcc act gta tta agc aat gga gaa gca gca atg cag tct tcc	519
Gln Lys Ser Thr Val Leu Ser Asn Gly Glu Ala Ala Met Gln Ser Ser	
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Asn Ser Glu Ser Lys Lys Lys Lys Lys Lys Arg Lys Met Val Asn	
104 109 114 119	
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Asp Ala Glu Pro Asp Thr Lys Lys Ala Lys Thr Glu Asn Lys Gly Lys	
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tct gaa gaa gaa agt gcc gag act act aaa gaa aca gaa aat aat gtg	663
Ser Glu Glu Glu Ser Ala Glu Thr Thr Lys Glu Thr Glu Asn Asn Val	
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Glu Lys Pro Asp Asn Asp Glu Asp Glu Ser Glu Val Pro Ser Leu Pro	
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Thr Asn Met Thr Glu Ile Gln His Lys Ser Ile Arg Pro Leu Leu Glu	
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Ala Phe Leu Ile Pro Ala Val Glu Leu Ile Val Lys Leu Arg Phe Met	
232 237 242 247	
ccc agg aat gga aca gga gtc ctt att ctc tca cct act aga gaa cta	999
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His Thr Tyr Gly Leu Ile Met Gly Gly Ser Asn Arg Ser Ala Glu Ala	
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Gln Lys Leu Gly Asn Gly Ile Asn Ile Ile Val Ala Thr Pro Gly Arg	
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Val	Val	Leu	Lys	Gly	Lys	Trp	Pro	Ser	Ser	Gln	Gln	Tyr	Glu	Pro	Ser	
1896					1901					1906					1911	
ggc	aca	ctg	ccc	acc	ccg	gta	tta	acc	agc	agt	gct	ggg	tct	cga	acc	5931
Gly	Thr	Leu	Pro	Thr	Pro	Val	Leu	Thr	Ser	Ser	Ala	Gly	Ser	Arg	Thr	
1912					1917					1922					1927	
agc	ctc	tca	gag	ccg	gaa	gca	gca	gaa	cac	agc	ttc	agc	aac	ggc	gca	5979
Ser	Leu	Ser	Glu	Pro	Glu	Ala	Ala	Glu	His	Ser	Phe	Ser	Asn	Gly	Ala	
1928					1933					1938					1943	
gca	ttg	gcg	gcc	cag	atc	cac	aag	gag	agc	ttc	tta	gct	cca	gta	ttc	6027
Ala	Leu	Ala	Ala	Gln	Ile	His	Lys	Glu	Ser	Phe	Leu	Ala	Pro	Val	Phe	
1944					1949					1954					1959	
aca	aag	gat	gaa	caa	aag	cac	agg	cgt	ccc	tat	gag	ttt	gag	gtg	gag	6075
Thr	Lys	Asp	Glu	Gln	Lys	His	Arg	Arg	Pro	Tyr	Glu	Phe	Glu	Val	Glu	
1960					1965					1970					1975	
agg	gat	gca	aag	gct	cgg	ggc	ctg	gag	cag	ttc	tct	gcc	acc	cac	ggg	6123
Arg	Asp	Ala	Lys	Ala	Arg	Gly	Leu	Glu	Gln	Phe	Ser	Ala	Thr	His	Gly	
1976					1981					1986					1991	
cac	acc	cct	atc	atc	ctc	aat	ggc	tgg	cat	ggg	gag	tca	gct	atg	gac	6171
His	Thr	Pro	Ile	Ile	Leu	Asn	Gly	Trp	His	Gly	Glu	Ser	Ala	Met	Asp	
1992					1997					2002					2007	
ctc	tcc	tgc	tca	tca	gag	ggg	tcc	cca	gga	gcc	aca	tcc	cct	ttc	cca	6219
Leu	Ser	Cys	Ser	Ser	Glu	Gly	Ser	Pro	Gly	Ala	Thr	Ser	Pro	Phe	Pro	
2008					2013					2018					2023	
gtg	agc	gcc	agc	acc	cct	aag	att	ggg	gct	atc	agt	tca	ctt	cag	gga	6267
Val	Ser	Ala	Ser	Thr	Pro	Lys	Ile	Gly	Ala	Ile	Ser	Ser	Leu	Gln	Gly	
2024					2029					2034					2039	
gcc	ctt	ggc	atg	gac	ttg	tct	ggg	att	ctg	caa	gct	ggc	ctg	atc	cat	6315
Ala	Leu	Gly	Met	Asp	Leu	Ser	Gly	Ile	Leu	Gln	Ala	Gly	Leu	Ile	His	
2040					2045					2050					2055	
cct	gtg	act	gga	cag	att	gtc	aat	gga	agc	ctc	aga	aga	gat	gat	gca	6363
Pro	Val	Thr	Gly	Gln	Ile	Val	Asn	Gly	Ser	Leu	Arg	Arg	Asp	Asp	Ala	
2056					2061					2066					2071	
gcc	acg	agg	agg	cgg	aga	ggg	agg	cgg	aaa	cat	gtt	gaa	gga	ggg	atg	6411
Ala	Thr	Arg	Arg	Arg	Arg	Gly	Arg	Arg	Lys	His	Val	Glu	Gly	Gly	Met	
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Asp	Leu	Ile	Phe	Leu	Lys	Glu	Gln	Thr	Leu	Gln	Ala	Gly	Ile	Leu	Glu	
2088					2093					2098					2103	
gtc	cat	gaa	gac	cca	ggg	cag	gcc	acc	ttg	agc	acc	aca	cac	cct	gag	6507
Val	His	Glu	Asp	Pro	Gly	Gln	Ala	Thr	Leu	Ser	Thr	Thr	His	Pro	Glu	

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Gly Pro Gly Pro Ala Thr Ser Ala Pro Glu Pro Ala Thr Ala Ala Ser				
2120	2125	2130	2135	
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Ser Gln Ala Glu Lys Ser Ile Pro Ser Lys Ser Leu Leu Asp Trp Leu				
2136	2141	2146	2151	
agg cag cag gct gac tac tcc tta gaa gtt cct ggc ttt ggg gca ggg				6651
Arg Gln Gln Ala Asp Tyr Ser Leu Glu Val Pro Gly Phe Gly Ala Gly				
2152	2157	2162	2167	
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Phe Leu Pro Glu Asn Lys Phe Asn His Thr Leu Ala Glu Pro Ile Leu				
2168	2173	2178	2183	
cga gat acg ggc ccc cgc agg agg ggg agg cgg cct cgg agc gaa ctc				6747
Arg Asp Thr Gly Pro Arg Arg Arg Gly Arg Arg Pro Arg Ser Glu Leu				
2184	2189	2194	2199	
ctg aag gct cct tcc att gtg gca gac tct ccc tct gga atg ggg cca				6795
Leu Lys Ala Pro Ser Ile Val Ala Asp Ser Pro Ser Gly Met Gly Pro				
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Asn Met Arg Asn Met Pro Gly Ile Pro Leu Thr Gly Leu Val Gly Phe				
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Pro Ala Gly Phe Ala Thr Met Pro Thr Gly Glu Glu Val Lys Ser Thr				
2248	2253	2258	2263	
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Leu Ser Met Leu Pro Met Met Leu Pro Gly Met Ala Ala Val Pro Gln				
2264	2269	2274	2279	
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Met Phe Gly Val Gly Gly Leu Leu Ser Pro Pro Met Ala Thr Thr Cys				
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Thr Ser Thr Ala Pro Ala Ser Leu Ser Ser Thr Thr Lys Ser Gly Thr				
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Lys Thr Asp Thr Leu Ala Glu Asp Lys Pro Gly Pro Gly Pro Phe Ser				
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cca ttt ctc atc cca gga gta tct cct gga ctc att tac cca tcc atg	7275
Pro Phe Leu Ile Pro Gly Val Ser Pro Gly Leu Ile Tyr Pro Ser Met	
2360 2365 2370 2375	
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Phe Leu Ser Pro Gly Met Gly Met Ala Leu Pro Ala Met Gln Gln Ala	
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Cys Glu Arg Glu Pro Ser Gly Asp Glu Asn Cys Ala Glu Pro Ser Ala	
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Pro Leu Pro Ala Glu Arg Glu His Gly Ala Gln Ala Gly Glu Gly Ala	
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 Met Asp Lys Lys Leu Glu Glu Gly
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 Cys Phe Asp Lys Ala Tyr Val Val Leu Gly Gln Phe Leu Val Leu Lys
 9 14 19 24
 aaa gat gaa gac ctc ttc cgg gaa tgg ctg agg gac act ggt ggt gcc 389
 Lys Asp Glu Asp Leu Phe Arg Glu Trp Leu Arg Asp Thr Gly Gly Ala
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 Asn Ala Lys Gln Ser Arg Asp Cys Phe Gly Cys Leu Arg Glu Trp Cys
 41 46 51 56
 gac gcc ttc ttg tga tgctctctgg gaagctctca atccccagcc ctcatccaga 492
 Asp Ala Phe Leu *
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Thr Phe Glu Gly Leu	Gln Gln Gln Phe Leu	Gly Ala Asn Glu Asn Ser		
124	129	134	139	
gca gaa aat atg cag	att att caa ctt cag	gtt ctt aac aaa gca aaa	661	
Ala Glu Asn Met Gln	Ile Ile Gln Leu Gln	Val Leu Asn Lys Ala Lys		
140	145	150	155	
gag aga caa ctg gag	aac tta att gaa aag tta	aat gaa agt gaa cgt	709	
Glu Arg Gln Leu Glu	Asn Leu Ile Glu Lys	Leu Asn Glu Ser Glu Arg		
156	161	166	171	
caa att cga tat ctg	aat cac cag ctt gta	ata ata aaa gat gaa aag	757	
Gln Ile Arg Tyr Leu	Asn His Gln Leu Val	Ile Ile Lys Asp Glu Lys		
172	177	182	187	
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Asp Gly Leu Thr Leu	Ser Leu Arg Glu Ser	Gln Lys Leu Phe Gln Asn		
188	193	198	203	
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Asp Leu His His Ser	Glu Ser Leu Gln Arg	Ala Arg Glu Gln His Glu		
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Ser Ile Val Met Gly	Leu Thr Lys Lys Tyr	Glu Glu Gln Val Leu Ser		
268	273	278	283	
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Leu Gln Lys Asn Leu	Asp Ala Thr Val Thr	Ala Leu Lys Glu Gln Glu		
284	289	294	299	
gac att tgc tct cgt	ctg aaa gat cac gtg	aaa caa ctg gaa agg aat	1141	
Asp Ile Cys Ser Arg	Leu Lys Asp His Val	Lys Gln Leu Glu Arg Asn		
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caa gaa gca atc aag	tta gaa aag act gag	atc att aat aag ttg aca	1189	
Gln Glu Ala Ile Lys	Leu Glu Lys Thr Glu	Ile Ile Asn Lys Leu Thr		
316	321	326	331	
aga agt cta gag gag	agt caa aag cag tgt	gcc cac ttg ttg cag tcc	1237	
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332	337	342	347	

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Gly Ser Val Gln Glu Val Ala Gln Leu Gln Phe Gln Leu Gln Gln Ala	
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Gln Lys Ala His Ala Met Ser Ala Asn Met Asn Lys Ala Leu Gln Glu	
364 369 374 379	
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Glu Leu Thr Glu Leu Lys Asp Glu Ile Ser Leu Tyr Glu Ser Ala Ala	
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Lys Leu Gly Ile His Pro Ser Asp Ser Glu Gly Glu Leu Asn Ile Glu	
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412 417 422 427	
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428 433 438 443	
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Leu Ser Lys Asp Glu Phe Ile Leu Lys Leu Lys Ala Glu Val Gln Arg	
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Leu Leu Gly Ser Asn Ser Met Lys Arg His Leu Val Ser Gln Leu Gln	
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aat gac ctc aaa gac tgt cat aag aaa att gaa gat ctc cac caa gtg	1669
Asn Asp Leu Lys Asp Cys His Lys Lys Ile Glu Asp Leu His Gln Val	
476 481 486 491	
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Lys Lys Asp Glu Lys Ser Ile Glu Val Glu Thr Lys Thr Asp Thr Ser	
492 497 502 507	
gaa aaa cca aag aat caa tta tgg cct gag tct tct act tct gat gtt	1765
Glu Lys Pro Lys Asn Gln Leu Trp Pro Glu Ser Ser Thr Ser Asp Val	
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Val Arg Asp Asp Ile Leu Leu Leu Lys Asn Glu Ile Gln Val Leu Gln	
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Gln Gln Asn Gln Glu Leu Lys Glu Thr Glu Gly Lys Leu Arg Asn Thr	
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Asn Gln Asp Leu Cys Asn Gln Met Arg Gln Met Val Gln Asp Phe Asp	
556 561 566 571	

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His Asp Lys Gln Glu Ala Val Asp Arg Cys Glu Arg Thr Tyr Gln Gln	
572 577 582 587	
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Glu Gln Glu Lys Asp Ile Ala Ile Lys Gly Ala Met Lys Lys Leu Glu	
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Ile Leu Pro Gly Lys Glu Leu Glu Glu Lys Ile His Ser Leu Gln Lys	
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Glu Leu Glu Leu Lys Asn Glu Glu Val Pro Val Val Ile Arg Ala Glu	
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860 865 870 875	
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His Arg Ile Gln Glu Gln Asn Glu Gln Asp Tyr Arg Gln Phe Leu Asp	
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Pro Leu Ala Leu Gln Ala Thr Glu Ala Glu Ala Asp Lys Lys Lys Val				
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Cys Arg His Leu Gln His Leu Glu Arg Lys His Lys Ala Val Val Glu				
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Tyr Asp Pro Asp Asn Glu Thr Asp Pro Phe His Asn Ile Trp Asp Lys				
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449 454 459 464	
cca ctg ggg ctg gac gaa gac ctg ctg ggg cct ggg gtg gcc gag ggc	1737
Pro Leu Gly Leu Asp Glu Asp Leu Leu Gly Pro Gly Val Ala Glu Gly	
465 470 475 480	
gag gga gca cca act cca aac tga cctgggcccgt ggctgcctcg tgagcctccc	1791
Glu Gly Ala Pro Thr Pro Asn *	
481 486	

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 Arg Arg Ala Leu Arg Arg Leu Arg Gly Glu Gln Arg Gly Gln Glu Pro
 3 8 13 18
 ctc ggg ccc ggc gcc ttg cat ttc gat ctc cgt gat gac gat gac gcg 152
 Leu Gly Pro Gly Ala Leu His Phe Asp Leu Arg Asp Asp Asp Ala
 19 24 29 34
 gaa gaa gaa ggg ccc aag cgg gag ctt ggt gtc cgg cgt ccc ggg ggc 200
 Glu Glu Glu Gly Pro Lys Arg Glu Leu Gly Val Arg Arg Pro Gly Gly
 35 40 45 50
 gca ggg aag gag ggc gtc cga gtc aac aac cgc ttc gag ctg ata aac 248
 Ala Gly Lys Glu Gly Val Arg Val Asn Asn Arg Phe Glu Leu Ile Asn
 51 56 61 66
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 Ile Asp Asp Leu Glu Asp Asp Pro Val Val Asn Gly Glu Arg Ser Gly
 67 72 77 82
 tgt gcg ctc aca gac gct gtg gca cca ggg aac aaa gga agg ggt cag 344
 Cys Ala Leu Thr Asp Ala Val Ala Pro Gly Asn Lys Gly Arg Gly Gln
 83 88 93 98
 cgt gga aac aca gag agc aag acg gat gga gat gac acc gag aca gtg 392
 Arg Gly Asn Thr Glu Ser Lys Thr Asp Gly Asp Asp Thr Glu Thr Val

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ccc tca gag cag tct	cat gca agt ggc aaa	ctc cgg aag aag aaa	aaa	440
Pro Ser Glu Gln Ser	His Ala Ser Gly Lys	Leu Arg Lys Lys Lys	Lys	
115	120	125	130	
aaa cag aaa aac aag	aaa agc agc acg gga	gaa gca tcg gaa aac	gga	488
Lys Gln Lys Asn Lys	Lys Ser Ser Thr Gly	Glu Ala Ser Glu Asn	Gly	
131	136	141	146	
cta gaa gat atc gat	cgc atc cta gag agg	att gag gac agc act	ggg	536
Leu Glu Asp Ile Asp	Arg Ile Leu Glu Arg	Ile Glu Asp Ser Thr	Gly	
147	152	157	162	
ttg aac cgt ccc ggc	cca gct ccc ctg agc	tcc agg aag cac gtt	ctc	584
Leu Asn Arg Pro Gly	Pro Ala Pro Leu Ser	Ser Arg Lys His Val	Leu	
163	168	173	178	
tac gtg gag cac aga	cac ttg aat cca gac	aca gaa ctg aaa agg	tat	632
Tyr Val Glu His Arg	His Leu Asn Pro Asp	Thr Glu Leu Lys Arg	Tyr	
179	184	189	194	
ttt ggt gcc cgg gca	atc ctg ggg gag caa	agg cca cgg cag aga	caa	680
Phe Gly Ala Arg Ala	Ile Leu Gly Glu Gln	Arg Pro Arg Gln Arg	Gln	
195	200	205	210	
cgt gtg tac ccc aag	tgc aca tgg ctg acc	acc cct aaa agc acc	tgg	728
Arg Val Tyr Pro Lys	Cys Thr Trp Leu Thr	Thr Pro Lys Ser Thr	Trp	
211	216	221	226	
ccc cgc tac agc aaa	cca ggt ctg tcc atg	cgg ctg ctg gaa tca	aaa	776
Pro Arg Tyr Ser Lys	Pro Gly Leu Ser Met	Arg Leu Leu Glu Ser	Lys	
227	232	237	242	
aaa ggc ctc tcc ttc	ttt gcg ttt gag cac	agt gag gag tac cag	cag	824
Lys Gly Leu Ser Phe	Phe Ala Phe Glu His	Ser Glu Glu Tyr Gln	Gln	
243	248	253	258	
gct cag cac aag ttc	ctg gtg gcc gtg gag	tct atg gag ccg aac	aac	872
Ala Gln His Lys Phe	Leu Val Ala Val Glu	Ser Met Glu Pro Asn	Asn	
259	264	269	274	
atc gtg gtt ctg ctc	cag acg agc cct tac	cac gtt gac tca ctc	ctg	920
Ile Val Val Leu Leu	Gln Thr Ser Pro Tyr	His Val Asp Ser Leu	Leu	
275	280	285	290	
cag ctc agc gat gcc	tgc cgc ttt caa gag	gat cag gag atg gct	cga	968
Gln Leu Ser Asp Ala	Cys Arg Phe Gln Glu	Asp Gln Glu Met Ala	Arg	
291	296	301	306	
gac ctc gta gag aga	gcg ctg tac agc atg	gaa tgt gcg ttc cac	ccc	1016
Asp Leu Val Glu Arg	Ala Leu Tyr Ser Met	Glu Cys Ala Phe His	Pro	
307	312	317	322	
ctg ttc agt ctc acc	agt ggg gcc tgc cgg	ctg gat tac cgc aga	ccc	1064
Leu Phe Ser Leu Thr	Ser Gly Ala Cys Arg	Leu Asp Tyr Arg Arg	Pro	
323	328	333	338	

gag aac agg agc ttc tac ctg gcc ctc tac aag cag atg agc ttc ctg	1112
Glu Asn Arg Ser Phe Tyr Leu Ala Leu Tyr Lys Gln Met Ser Phe Leu	
339 344 349 354	
gag aag cga ggc tgc ccg cgc acg gcg ctg gag tac tgc aag ctc atc	1160
Glu Lys Arg Gly Cys Pro Arg Thr Ala Leu Glu Tyr Cys Lys Leu Ile	
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Leu Ser Leu Glu Pro Asp Glu Asp Pro Leu Cys Met Leu Leu Leu Ile	
371 376 381 386	
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Asp His Leu Ala Leu Arg Ala Arg Asn Tyr Glu Tyr Leu Ile Arg Leu	
387 392 397 402	
ttc cag gag tgg gag gtg ggt gcg agc ctg gct cat cgg aac ctg tcc	1304
Phe Gln Glu Trp Glu Val Gly Ala Ser Leu Ala His Arg Asn Leu Ser	
403 408 413 418	
cag ctc cct aat ttt gcc ttc tct gtt cca ctg gcg tat ttc ctg ctg	1352
Gln Leu Pro Asn Phe Ala Phe Ser Val Pro Leu Ala Tyr Phe Leu Leu	
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Ser Gln Gln Thr Asp Leu Pro Glu Cys Glu Gln Ser Ser Ala Arg Gln	
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Lys Ala Ser Leu Leu Ile Gln Gln Ala Leu Thr Met Phe Pro Gly Val	
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Leu Leu Pro Leu Leu Glu Ser Cys Ser Val Arg Pro Asp Ala Ser Val	
467 472 477 482	
tcc agt cac cgc ttc ttt gga ccc aat gct gaa ata agc cag ccc cct	1544
Ser Ser His Arg Phe Phe Gly Pro Asn Ala Glu Ile Ser Gln Pro Pro	
483 488 493 498	
gcc ctg agc cag ctg gtg aac ctg tac ctt ggg agg tca cac ttt ctc	1592
Ala Leu Ser Gln Leu Val Asn Leu Tyr Leu Gly Arg Ser His Phe Leu	
499 504 509 514	
tgg aaa gag ccc gcc acc atg agc tgg ctg gag gag aac gtc cac gag	1640
Trp Lys Glu Pro Ala Thr Met Ser Trp Leu Glu Glu Asn Val His Glu	
515 520 525 530	
gtt ctg caa gca gtg gac gcc ggg gac cca gcc gtg gaa gcc tgt gag	1688
Val Leu Gln Ala Val Asp Ala Gly Asp Pro Ala Val Glu Ala Cys Glu	
531 536 541 546	
aac cgg cgg aag gtg ctc tac cag cgt gca ccc agg aat atc cac cgc	1736
Asn Arg Arg Lys Val Leu Tyr Gln Arg Ala Pro Arg Asn Ile His Arg	
547 552 557 562	

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His Val Ile Leu Ser Glu Ile Lys Glu Ala Val Ala Ala Leu Pro Pro	
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Asp Val Thr Thr Gln Ser Val Met Gly Phe Asp Pro Leu Pro Pro Ser	
579 584 589 594	
gac aca atc tac tcc tac gtc agg cca gag agg cta agt cct atc agc	1880
Asp Thr Ile Tyr Ser Tyr Val Arg Pro Glu Arg Leu Ser Pro Ile Ser	
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His Gly Asn Thr Ile Ala Leu Phe Phe Arg Ser Leu Leu Pro Asn Tyr	
611 616 621 626	
acc atg gag ggg gag agg ccc gag gaa gga gtg gct ggg ggt ctg aac	1976
Thr Met Glu Gly Glu Arg Pro Glu Glu Gly Val Ala Gly Gly Leu Asn	
627 632 637 642	
cgc aac cag ggc ctg aac agg ctg atg ctg gct gtg cgc gac atg atg	2024
Arg Asn Gln Gly Leu Asn Arg Leu Met Leu Ala Val Arg Asp Met Met	
643 648 653 658	
gcc aac ttc cac ctc aac gac ctg gag gcg ccg cac gag gac gac gct	2072
Ala Asn Phe His Leu Asn Asp Leu Glu Ala Pro His Glu Asp Asp Ala	
659 664 669 674	
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Glu Gly Glu Gly Glu Trp Asp *	
675 680	
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Arg Arg Ala Leu Arg Arg Leu Arg Gly Glu Gln Arg Gly Gln Glu Pro	

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Leu Gly Pro Gly Ala Leu His Phe Asp Leu Arg Asp Asp Asp Ala				
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gaa gaa gaa ggg ccc aag cgg gag ctt ggt gtc cgg cgt ccc ggg ggc	200			
Glu Glu Glu Gly Pro Lys Arg Glu Leu Gly Val Arg Arg Pro Gly Gly				
35 40 45 50				
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Ala Gly Lys Glu Gly Val Arg Val Asn Asn Arg Phe Glu Leu Ile Asn				
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Ile Asp Asp Leu Glu Asp Asp Pro Val Val Asn Gly Glu Arg Ser Gly				
67 72 77 82				
tgt gcg ctc aca gac gct gtg gca cca ggg aac aaa gga agg ggt cag	344			
Cys Ala Leu Thr Asp Ala Val Ala Pro Gly Asn Lys Gly Arg Gly Gln				
83 88 93 98				
cgt gga aac aca gag agc aag acg gat gga gat gac acc gag aca gtg	392			
Arg Gly Asn Thr Glu Ser Lys Thr Asp Gly Asp Asp Thr Glu Thr Val				
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131 136 141 146				
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147 152 157 162				
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Tyr Val Glu His Arg His Leu Asn Pro Asp Thr Glu Leu Lys Arg Tyr				
179 184 189 194				
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ccc cgc tac agc aaa cca ggt ctg tcc atg cgg ctg ctg gaa tca aaa	776			
Pro Arg Tyr Ser Lys Pro Gly Leu Ser Met Arg Leu Leu Glu Ser Lys				
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Ala Gln His Lys Phe Leu Val Ala Val Glu Ser Met Glu Pro Asn Asn	
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atc gtg ctc agc gat gcc tgc cgc ttt caa gag gat cag gag atg gct	920
Ile Val Leu Ser Asp Ala Cys Arg Phe Gln Glu Asp Gln Glu Met Ala	
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cga gac ctc gta gag aga ggc ctg tac agc atg gaa tgt ggc ttc cac	968
Arg Asp Leu Val Glu Arg Ala Leu Tyr Ser Met Glu Cys Ala Phe His	
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Pro Leu Phe Ser Leu Thr Ser Gly Ala Cys Arg Leu Asp Tyr Arg Arg	
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ccc gag aac agg agc ttc tac ctg gcc ctc tac aag cag atg agc ttc	1064
Pro Glu Asn Arg Ser Phe Tyr Leu Ala Leu Tyr Lys Gln Met Ser Phe	
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Ile Asp His Leu Ala Leu Arg Ala Arg Asn Tyr Glu Tyr Leu Ile Arg	
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Val Leu Leu Pro Leu Leu Glu Ser Cys Ser Val Arg Pro Asp Ala Ser	
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Val Ser Ser His Arg Phe Phe Gly Pro Asn Ala Glu Ile Ser Gln Pro	
467 472 477 482	
cct gcc ctg agc cag ctg gtg aac ctg tac ctt ggg agg tca cac ttt	1544
Pro Ala Leu Ser Gln Leu Val Asn Leu Tyr Leu Gly Arg Ser His Phe	
483 488 493 498	
ctc tgg aaa gag ccc gcc acc atg agc tgg ctg gag gag aac gtc cac	1592
Leu Trp Lys Glu Pro Ala Thr Met Ser Trp Leu Glu Glu Asn Val His	
499 504 509 514	
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Glu Val Leu Gln Ala Val Asp Ala Gly Asp Pro Ala Val Glu Ala Cys	
515 520 525 530	
gag aac cgg cgg aag gtg ctc tac cag cgt gca ccc agg aat atc cac	1688
Glu Asn Arg Arg Lys Val Leu Tyr Gln Arg Ala Pro Arg Asn Ile His	
531 536 541 546	
cgc cat gtg atc ctc tct gag atc aag gaa gcc gtc gct gcc ctg ccc	1736
Arg His Val Ile Leu Ser Glu Ile Lys Glu Ala Val Ala Ala Leu Pro	
547 552 557 562	
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Pro Asp Val Thr Thr Gln Ser Val Met Gly Phe Asp Pro Leu Pro Pro	
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Ser Asp Thr Ile Tyr Ser Tyr Val Arg Pro Glu Arg Leu Ser Pro Ile	
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agc cat gga aac acc att gct ctc ttc ttc cgg tca ctg ttg cca aac	1880
Ser His Gly Asn Thr Ile Ala Leu Phe Phe Arg Ser Leu Leu Pro Asn	
595 600 605 610	
tat acc atg gag ggg gag agg ccc gag gaa gga gtg gct ggg ggt ctg	1928
Tyr Thr Met Glu Gly Glu Arg Pro Glu Glu Gly Val Ala Gly Gly Leu	
611 616 621 626	
aac cgc aac cag ggc ctg aac agg ctg atg ctg gct gtg cgc gac atg	1976
Asn Arg Asn Gln Gly Leu Asn Arg Leu Met Leu Ala Val Arg Asp Met	
627 632 637 642	
atg gcc aac ttc cac ctc aac gac ctg gag gcg ccg cac gag gac gac	2024
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643 648 653 658	
gct gag ggg gag ggg gag tgg gac tga gcgtc cgcagaggtg accgaaaagc	2076
Ala Glu Gly Glu Gly Glu Trp Asp *	
659 664	
cgtatgatga tgttcccgat ttctctgttg gtggagtgcc gccagttgcc tgaagtaggg	2136
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 Met Phe Tyr Tyr Pro
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 aac gtg ctt cag cgc cac acc ggc tgc ttt gcc acc atc tgg ctg gcg 462
 Asn Val Leu Gln Arg His Thr Gly Cys Phe Ala Thr Ile Trp Leu Ala
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 gcg act cgc ggc agc cgg ttg gtg aag cgc gaa tac ctg agg gtg aat 510
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 22 27 32 37
 gtg gtg aaa acc tgc gag gaa atc ctc aat tac gtg ctg gta cga gtg 558
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 Gln Pro Pro Gln Pro Gly Leu Pro Arg Pro Arg Phe Ser Leu Tyr Leu
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 Ser Ala Gln Leu Gln Ile Gly Val Ile Arg Val Tyr Ser Gln Gln Cys
 70 75 80 85
 cag tac ctc gtg gag gac atc cag cac atc ttg gag cgc ctc cac cgt 702
 Gln Tyr Leu Val Glu Asp Ile Gln His Ile Leu Glu Arg Leu His Arg
 86 91 96 101
 gcc cag ctg cag atc cga ata gat atg gag act gag cta ccc agc ctg 750
 Ala Gln Leu Gln Ile Arg Ile Asp Met Glu Thr Glu Leu Pro Ser Leu
 102 107 112 117

ctg ctt cct aac cac ctg gcc atg atg gag acc cta gaa gat gct cca	798
Leu Leu Pro Asn His Leu Ala Met Met Glu Thr Leu Glu Asp Ala Pro	
118 123 128 133	
gat ccc ttt ttt ggg atg atg tct gtg gat ccc aga ctt cct agt cct	846
Asp Pro Phe Phe Gly Met Met Ser Val Asp Pro Arg Leu Pro Ser Pro	
134 139 144 149	
ttc gat atc cct cag att cga cac ctc tta gag gct gca atc cca gag	894
Phe Asp Ile Pro Gln Ile Arg His Leu Leu Glu Ala Ala Ile Pro Glu	
150 155 160 165	
aga gtt gaa gag atc cct cct gaa gtt cct aca gag ccc agg gag cca	942
Arg Val Glu Glu Ile Pro Pro Glu Val Pro Thr Glu Pro Arg Glu Pro	
166 171 176 181	
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Glu Arg Ile Pro Val Thr Val Leu Pro Pro Glu Ala Ile Thr Ile Leu	
182 187 192 197	
gag gca gag ccc ata cgg atg ctg gag att gag ggt gaa cgg gag ctc	1038
Glu Ala Glu Pro Ile Arg Met Leu Glu Ile Glu Gly Glu Arg Glu Leu	
198 203 208 213	
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Pro Glu Val Ser Arg Arg Glu Leu Asp Leu Leu Ile Ala Glu Glu Glu	
214 219 224 229	
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Glu Ala Ile Leu Leu Glu Ile Pro Arg Leu Pro Pro Pro Ala Pro Ala	
230 235 240 245	
gag gtg gaa gga ata gga gag gca ctg ggt cct gag gag ctg agg ctg	1182
Glu Val Glu Gly Ile Gly Glu Ala Leu Gly Pro Glu Glu Leu Arg Leu	
246 251 256 261	
aca ggc tgg gaa cct ggg gcc cta ctc atg gag gtg acc ccc ccg gag	1230
Thr Gly Trp Glu Pro Gly Ala Leu Leu Met Glu Val Thr Pro Pro Glu	
262 267 272 277	
gag ctg cgt ctg cca gcc cca ccc agc cca gag agg agg ccc cca gtc	1278
Glu Leu Arg Leu Pro Ala Pro Pro Ser Pro Glu Arg Arg Pro Pro Val	
278 283 288 293	
ccc cca cct cct cgc cgc cgc cgt cgt cgc cgg tta ctg ttc tgg gac	1326
Pro Pro Pro Pro Arg Arg Arg Arg Arg Arg Arg Leu Leu Phe Trp Asp	
294 299 304 309	
aag gag act cag atc tcc ccg gag aaa ttc gag gaa caa ctg caa acc	1374
Lys Glu Thr Gln Ile Ser Pro Glu Lys Phe Gln Glu Gln Leu Gln Thr	
310 315 320 325	
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326 331 336 341	

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342 347 352 357	
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Leu Pro Pro Glu Leu Leu Gly Leu Trp Thr His Cys Ala Gln Pro Pro	
358 363 368 373	
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Pro Lys Ala Leu Arg Arg Glu Leu Pro Glu Glu Ala Ala Ala Glu Glu	
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Glu Arg Arg Lys Ile Glu Val Pro Ser Glu Ile Glu Val Pro Arg Glu	
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Ala Leu Glu Pro Ser Val Pro Leu Met Val Ser Leu Glu Ile Ser Leu	
406 411 416 421	
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Glu Ala Ala Glu Glu Glu Lys Ser Arg Ile Ser Leu Ile Pro Pro Glu	
422 427 432 437	
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Glu Arg Trp Ala Trp Pro Glu Val Glu Ala Pro Glu Ala Pro Ala Leu	
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Pro Val Val Pro Glu Leu Pro Glu Val Pro Met Glu Met Pro Leu Val	
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Val Ala Leu Glu Leu Gln Ala Asn Arg Glu Pro Asp Phe Ser Ser Leu	
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Val Ser Pro Leu Ser Pro Arg Arg Met Ala Ala Arg Val Phe Tyr Leu	
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Leu Leu Val Leu Ser Ala Gln Gln Ile Leu His Val Lys Gln Glu Lys	
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Pro Tyr Gly Arg Leu Leu Ile Gln Pro Gly Pro Arg Phe His *	
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cactgggtcc tgcttacctc atttctgaat gtgcatttcc agccttcttg ctctcagagc	2166
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cgtccccttg gagctctgca totccaacct ggaacccaac ccagaagtct caagtttgac 240
gcatacagtg gcgtgcggat ccactgaggg tccacagaga ggggcgccc tctcctgcgt 300
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gggatctggg ggaatcgagg gtgaaagacc agagggaca atg ttc tac tat ccc 414
Met Phe Tyr Tyr Pro
1

aac gtg ctt cag cgc cac acc ggc tgc ttt gcc acc atc tgg ctg ggc 462
Asn Val Leu Gln Arg His Thr Gly Cys Phe Ala Thr Ile Trp Leu Ala
6 11 16 21
gcg act cgc ggc agc cgg ttg gtg aag cgc gaa tac ctg agg gtg aat 510
Ala Thr Arg Gly Ser Arg Leu Val Lys Arg Glu Tyr Leu Arg Val Asn
22 27 32 37
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Val Val Lys Thr Cys Glu Glu Ile Leu Asn Tyr Val Leu Val Arg Val
38 43 48 53
caa ccc ccg cag ccc ggc ctg ccg cgg ccc cgc ttc tcc ctc tat ctc 606
Gln Pro Pro Gln Pro Gly Leu Pro Arg Pro Arg Phe Ser Leu Tyr Leu
54 59 64 69

tca gcc caa ctt cag atc ggt gtg atc cgc gtc tat tct caa caa tgc	654
Ser Ala Gln Leu Gln Ile Gly Val Ile Arg Val Tyr Ser Gln Gln Cys	
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Gln Tyr Leu Val Glu Asp Ile Gln His Ile Leu Glu Arg Leu His Arg	
86 91 96 101	
gcc cag ctg cag atc cga ata gat atg gag act gag cta ccc agc ctg	750
Ala Gln Leu Gln Ile Arg Ile Asp Met Glu Thr Glu Leu Pro Ser Leu	
102 107 112 117	
ctg ctt cct aac cac ctg gcc atg atg gag acc cta gaa gat gct cca	798
Leu Leu Pro Asn His Leu Ala Met Met Glu Thr Leu Glu Asp Ala Pro	
118 123 128 133	
gat ccc ttt ttt ggg atg atg tct gtg gat ccc aga ctt cct agt cct	846
Asp Pro Phe Phe Gly Met Met Ser Val Asp Pro Arg Leu Pro Ser Pro	
134 139 144 149	
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Phe Asp Ile Pro Gln Ile Arg His Leu Leu Glu Ala Ala Ile Pro Glu	
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Arg Val Glu Glu Ile Pro Pro Glu Val Pro Thr Glu Pro Arg Glu Pro	
166 171 176 181	
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Glu Arg Ile Pro Val Thr Val Leu Pro Pro Glu Ala Ile Thr Ile Leu	
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Glu Ala Glu Pro Ile Arg Met Leu Glu Ile Glu Gly Glu Arg Glu Leu	
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Pro Glu Val Ser Arg Arg Glu Leu Asp Leu Leu Ile Ala Glu Glu Glu	
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aca ggc tgg gaa cct ggg gcc cta ctc atg gag gtg acc ccc ccg gag	1230
Thr Gly Trp Glu Pro Gly Ala Leu Leu Met Glu Val Thr Pro Pro Glu	
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Glu Leu Arg Leu Pro Ala Pro Pro Ser Pro Glu Arg Arg Pro Pro Val	
278 283 288 293	

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Pro	Pro	Pro	Pro	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Leu	Leu	Phe	Trp	Asp	
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Lys	Glu	Thr	Gln	Ile	Ser	Pro	Glu	Lys	Phe	Gln	Glu	Gln	Leu	Gln	Thr	
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Arg	Ala	His	Cys	Trp	Glu	Cys	Pro	Met	Val	Gln	Pro	Pro	Glu	Arg	Thr	
326					331					336					341	
atc	aga	ggc	cct	gcg	gag	ttg	ttc	aga	acc	cca	act	ctc	tct	ggc	tgg	1470
Ile	Arg	Gly	Pro	Ala	Glu	Leu	Phe	Arg	Thr	Pro	Thr	Leu	Ser	Gly	Trp	
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cta	ccc	cct	gaa	cta	ctg	ggt	ctc	tgg	acc	cat	tgt	gcc	cag	cca	ccc	1518
Leu	Pro	Pro	Glu	Leu	Leu	Gly	Leu	Trp	Thr	His	Cys	Ala	Gln	Pro	Pro	
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Glu	Arg	Arg	Lys	Ile	Glu	Val	Pro	Ser	Glu	Ile	Glu	Val	Pro	Arg	Glu	
390					395					400					405	
gcc	ctg	gag	ccc	agt	gtt	ccc	ctt	atg	gtg	tct	tta	gag	atc	tcc	cta	1662
Ala	Leu	Glu	Pro	Ser	Val	Pro	Leu	Met	Val	Ser	Leu	Glu	Ile	Ser	Leu	
406					411					416					421	
gag	gca	gct	gaa	gag	gag	aag	tcc	cgc	atc	agc	ctc	atc	cca	cca	gaa	1710
Glu	Ala	Ala	Glu	Glu	Glu	Lys	Ser	Arg	Ile	Ser	Leu	Ile	Pro	Pro	Glu	
422					427					432					437	
gaa	cgg	tgg	gcc	tgg	cct	gag	gtg	gag	gcg	cca	gaa	gct	cct	gca	ttg	1758
Glu	Arg	Trp	Ala	Trp	Pro	Glu	Val	Glu	Ala	Pro	Glu	Ala	Pro	Ala	Leu	
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Leu	Pro	Pro	Glu	Leu	Glu	Leu	Leu	Ser	Leu	Glu	Ala	Val	His	Ser	Pro	
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486					491					496					501	
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Gln	Gln	Ile	Leu	His	Val	Lys	Gln	Glu	Lys	Pro	Tyr	Gly	Arg	Leu	Leu	
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Ile Gln Pro Gly Pro Arg Phe His *

518

523

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 Met Ala Ser Glu
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gac att gcc aag ctg gca gag aca ctt gcc aag act cag gtg gcc ggg 402
 Asp Ile Ala Lys Leu Ala Glu Thr Leu Ala Lys Thr Gln Val Ala Gly
 5 10 15 20

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 Gly Gln Leu Ser Phe Lys Gly Lys Ser Leu Lys Leu Asn Thr Ala Glu
 21 26 31 36

gat gct aaa gat gtg att aaa gag att gaa gac ttt gac agc ttg gag 498
 Asp Ala Lys Asp Val Ile Lys Glu Ile Glu Asp Phe Asp Ser Leu Glu
 37 42 47 52

gct ctg cgt ctg gaa ggc aac aca gtg ggc gtg gaa gca gcc agg gtc	546
Ala Leu Arg Leu Glu Gly Asn Thr Val Gly Val Glu Ala Ala Arg Val	
53 58 63 68	
atc gcc aag gcc tta gag aag aag tcg gag ttg aag cgc tgc cac tgg	594
Ile Ala Lys Ala Leu Glu Lys Lys Ser Glu Leu Lys Arg Cys His Trp	
69 74 79 84	
agt gac atg ttc acg gga agg ctg cgg acc gag atc cca cca gcc ctg	642
Ser Asp Met Phe Thr Gly Arg Leu Arg Thr Glu Ile Pro Pro Ala Leu	
85 90 95 100	
atc tca cta ggg gaa gga ctc atc aca gct ggg gct cag ctg gtg gag	690
Ile Ser Leu Gly Glu Gly Leu Ile Thr Ala Gly Ala Gln Leu Val Glu	
101 106 111 116	
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Leu Asp Leu Ser Asp Asn Ala Phe Gly Pro Asp Gly Val Gln Gly Phe	
117 122 127 132	
gag gcc ctg ctc aag agc tca gcc tgc ttc acc ctg cag gaa ctc aag	786
Glu Ala Leu Leu Lys Ser Ser Ala Cys Phe Thr Leu Gln Glu Leu Lys	
133 138 143 148	
ctc aac aac tgt ggc atg ggc att ggc ggc ggc aag atc ctg gct gca	834
Leu Asn Asn Cys Gly Met Gly Ile Gly Gly Lys Ile Leu Ala Ala	
149 154 159 164	
gct ctg acc gaa tgt cac cgg aaa tcc agt gcc caa gcc aag cct ctg	882
Ala Leu Thr Glu Cys His Arg Lys Ser Ser Ala Gln Gly Lys Pro Leu	
165 170 175 180	
gcc ctg aag gtc ttt gtg gct ggc aga aac cgt ctg gag aat gat ggc	930
Ala Leu Lys Val Phe Val Ala Gly Arg Asn Arg Leu Glu Asn Asp Gly	
181 186 191 196	
gcc act gcc ttg gca gaa gct ttt agg gtc atc ggg acc ctg gag gag	978
Ala Thr Ala Leu Ala Glu Ala Phe Arg Val Ile Gly Thr Leu Glu Glu	
197 202 207 212	
gtc cac atg cca cag aat ggg atc aac cac cct ggc atc act gcc ctg	1026
Val His Met Pro Gln Asn Gly Ile Asn His Pro Gly Ile Thr Ala Leu	
213 218 223 228	
gcc cag gct ttc gct gtc aac ccc ctg ctg cgg gtc atc aac ctg aat	1074
Ala Gln Ala Phe Ala Val Asn Pro Leu Leu Arg Val Ile Asn Leu Asn	
229 234 239 244	
gac aac acc ttc act gag aag ggc gcc gtg gcc atg gcc gag acc ttg	1122
Asp Asn Thr Phe Thr Glu Lys Gly Ala Val Ala Met Ala Glu Thr Leu	
245 250 255 260	
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Lys Thr Leu Arg Gln Val Glu Val Ile Asn Phe Gly Asp Cys Leu Val	
261 266 271 276	

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Arg Ser Lys Gly Ala Val Ala Ile Ala Asp Ala Ile Arg Gly Gly Leu	
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Pro Lys Leu Lys Glu Leu Asn Leu Ser Phe Cys Glu Ile Lys Arg Asp	
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309 314 319 324	
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Lys Leu Asp Leu Asn Gly Asn Thr Leu Gly Glu Glu Gly Cys Glu Gln	
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389 394 399 404	
gag aag tca gcc acg ccc tca cgg aag att ctg gac cct aac act ggg	1602
Glu Lys Ser Ala Thr Pro Ser Arg Lys Ile Leu Asp Pro Asn Thr Gly	
405 410 415 420	
gag cca gct ccc gtg ctg tcc tcc cca cct cct gca gac gtc tcc acc	1650
Glu Pro Ala Pro Val Leu Ser Ser Pro Pro Pro Ala Asp Val Ser Thr	
421 426 431 436	
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Phe Leu Ala Phe Pro Ser Pro Glu Lys Leu Leu Arg Leu Gly Pro Lys	
437 442 447 452	
agc tcc gtg ctg ata gcc cag cag act gac acg tct gac ccc gag aag	1746
Ser Ser Val Leu Ile Ala Gln Gln Thr Asp Thr Ser Asp Pro Glu Lys	
453 458 463 468	
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Val Val Ser Ala Phe Leu Lys Val Ser Ser Val Phe Lys Asp Glu Ala	
469 474 479 484	
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Thr Val Arg Met Ala Val Gln Asp Ala Val Asp Ala Leu Met Gln Lys	
485 490 495 500	
gct ttc aac tcc tcg tcc ttc aac tcc aac acc ttc ctc acc agg ctc	1890

Ala Phe Asn Ser Ser Ser Phe Asn Ser Asn Thr Phe Leu Thr Arg Leu	
501 506 511 516	
ctc gtg cac atg ggt ctg ctc aag agt gaa gac aag gtc aag gcc att	1938
Leu Val His Met Gly Leu Leu Lys Ser Glu Asp Lys Val Lys Ala Ile	
517 522 527 532	
gcc aac ctg tac ggc ccc ctg atg gcg ctg aac cac atg gtg cag cag	1986
Ala Asn Leu Tyr Gly Pro Leu Met Ala Leu Asn His Met Val Gln Gln	
533 538 543 548	
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Asp Tyr Phe Pro Lys Ala Leu Ala Pro Leu Leu Leu Ala Phe Val Thr	
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Lys Pro Asn Ser Ala Leu Glu Ser Cys Ser Phe Ala Arg His Ser Leu	
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gac att gcc	aag ctg gca	gag aca ctt	gcc aag act	cag gtg gcc	ggg	402
Asp Ile Ala	Lys Leu Ala	Glu Thr Leu	Ala Lys Thr	Gln Val Ala	Gly	
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Gly Gln Leu	Ser Phe Lys	Gly Lys Ser	Leu Lys Leu	Asn Thr Ala	Glu	
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Asp Ala Lys	Asp Val Ile	Lys Glu Ile	Glu Asp Phe	Asp Ser Leu	Glu	
37	42	47	52			
gct ctg cgt	ctg gaa ggc	aac aca gtg	ggc gtg gaa	gca gcc agg	gtc	546
Ala Leu Arg	Leu Glu Gly	Asn Thr Val	Gly Val Glu	Ala Ala Arg	Val	
53	58	63	68			
atc gcc aag	gcc tta gag	aag aag tcg	gag ttg aag	cgc tgc cac	tgg	594
Ile Ala Lys	Ala Leu Glu	Lys Lys Ser	Glu Leu Lys	Arg Cys His	Trp	
69	74	79	84			
agt gac atg	ttc acg gga	agg ctg cgg	acc gag atc	cca cca gcc	ctg	642
Ser Asp Met	Phe Thr Gly	Arg Leu Arg	Thr Glu Ile	Pro Pro Ala	Leu	
85	90	95	100			
atc tca cta	ggg gaa gga	ctc atc aca	gct ggg gct	cag ctg gtg	gag	690
Ile Ser Leu	Gly Glu Gly	Leu Ile Thr	Ala Gly Ala	Gln Leu Val	Glu	
101	106	111	116			
ctg gac tta	agc gac aac	gca ttc ggg	ccc gac ggt	gtg caa ggc	ttc	738
Leu Asp Leu	Ser Asp Asn	Ala Phe Gly	Pro Asp Gly	Val Gln Gly	Phe	

117	122	127	132	
gag gcc ctg ctc aag agc tca gcc tgc ttc acc ctg cag gaa ctc aag				786
Glu Ala Leu Leu Lys Ser Ser Ala Cys Phe Thr Leu Gln Glu Leu Lys				
133	138	143	148	
ctc aac aac tgt ggc atg ggc att ggc ggc ggc aag atc ctg gct gca				834
Leu Asn Asn Cys Gly Met Gly Ile Gly Gly Gly Lys Ile Leu Ala Ala				
149	154	159	164	
gct ctg acc gaa tgt cac cgg aaa tcc agt gcc caa ggc aag cct ctg				882
Ala Leu Thr Glu Cys His Arg Lys Ser Ser Ala Gln Gly Lys Pro Leu				
165	170	175	180	
gcc ctg aag gtc ttt gtg gct ggc aga aac cgt ctg gag aat gat ggc				930
Ala Leu Lys Val Phe Val Ala Gly Arg Asn Arg Leu Glu Asn Asp Gly				
181	186	191	196	
gcc act gcc ttg gca gaa gct ttt agg gtc atc ggg acc ctg gag gag				978
Ala Thr Ala Leu Ala Glu Ala Phe Arg Val Ile Gly Thr Leu Glu Glu				
197	202	207	212	
gtc cac atg cca cag aat ggg atc aac cac cct ggc atc act gcc ctg				1026
Val His Met Pro Gln Asn Gly Ile Asn His Pro Gly Ile Thr Ala Leu				
213	218	223	228	
gcc cag gct ttc gct gtc aac ccc ctg ctg cgg gtc atc aac ctg aat				1074
Ala Gln Ala Phe Ala Val Asn Pro Leu Leu Arg Val Ile Asn Leu Asn				
229	234	239	244	
gac aac acc ttc act gag aag ggc gcc gtg gcc atg gcc gag acc ttg				1122
Asp Asn Thr Phe Thr Glu Lys Gly Ala Val Ala Met Ala Glu Thr Leu				
245	250	255	260	
aag acc ttg cgg cag gtg gag gtg att aat ttt ggg gac tgc ctg gtg				1170
Lys Thr Leu Arg Gln Val Glu Val Ile Asn Phe Gly Asp Cys Leu Val				
261	266	271	276	
cgc tcc aag ggt gca gtt gcc att gca gat gcc atc cgc ggc ggc ctg				1218
Arg Ser Lys Gly Ala Val Ala Ile Ala Asp Ala Ile Arg Gly Gly Leu				
277	282	287	292	
ccc aag cta aag gag ctg aac ttg tca ttc tgt gaa atc aag agg gat				1266
Pro Lys Leu Lys Glu Leu Asn Leu Ser Phe Cys Glu Ile Lys Arg Asp				
293	298	303	308	
gct gcc ctg gct gtt gct gag gcc atg gca gac aaa gct gag ctg gag				1314
Ala Ala Leu Ala Val Ala Glu Ala Met Ala Asp Lys Ala Glu Leu Glu				
309	314	319	324	
aag ctg gac ctg aat ggc aac acc ctg gga gaa gaa ggc tgt gaa cag				1362
Lys Leu Asp Leu Asn Gly Asn Thr Leu Gly Glu Glu Gly Cys Glu Gln				
325	330	335	340	
ctt cag gag gtg ctg gag ggc ttc aac atg gcc aag gtg ctg gcg tcc				1410
Leu Gln Glu Val Leu Glu Gly Phe Asn Met Ala Lys Val Leu Ala Ser				
341	346	351	356	

ctc agt gat gac gag gac gag gag gag gag gag gaa gaa gag cct cag	1458
Leu Ser Asp Asp Glu Asp Glu Glu Glu Glu Glu Glu Glu Glu Pro Gln	
357 362 367 372	
cag cga ggg cag gga gag aag tca gcc acg ccc tca cgg aag att ctg	1506
Gln Arg Gly Gln Gly Glu Lys Ser Ala Thr Pro Ser Arg Lys Ile Leu	
373 378 383 388	
gac cct aac act ggg gag cca gct ccc gtg ctg tcc tcc cca cct cct	1554
Asp Pro Asn Thr Gly Glu Pro Ala Pro Val Leu Ser Ser Pro Pro Pro	
389 394 399 404	
gca gac gtc tcc acc ttc ctg gct ttt ccc tct cca gag aag ctg ctg	1602
Ala Asp Val Ser Thr Phe Leu Ala Phe Pro Ser Pro Glu Lys Leu Leu	
405 410 415 420	
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Arg Leu Gly Pro Lys Ser Ser Val Leu Ile Ala Gln Gln Thr Asp Thr	
421 426 431 436	
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Ser Asp Pro Glu Lys Val Val Ser Ala Phe Leu Lys Val Ser Ser Val	
437 442 447 452	
ttc aag gac gaa gct act gtg agg atg gca gtg cag gat gca gta gat	1746
Phe Lys Asp Glu Ala Thr Val Arg Met Ala Val Gln Asp Ala Val Asp	
453 458 463 468	
gcc ctg atg cag aag gct ttc aac tcc tcc tcc ttc aac tcc aac acc	1794
Ala Leu Met Gln Lys Ala Phe Asn Ser Ser Ser Phe Asn Ser Asn Thr	
469 474 479 484	
ttc ctc acc agg ctc ctc gtg cac atg ggt ctg ctc aag agt gaa gac	1842
Phe Leu Thr Arg Leu Leu Val His Met Gly Leu Leu Lys Ser Glu Asp	
485 490 495 500	
aag gtc aag gcc att gcc aac ctg tac ggc ccc ctg atg gcg ctg aac	1890
Lys Val Lys Ala Ile Ala Asn Leu Tyr Gly Pro Leu Met Ala Leu Asn	
501 506 511 516	
cac atg gtg cag cag gac tat ttc ccc aag gcc ctt gca ccc ctg ctg	1938
His Met Val Gln Gln Asp Tyr Phe Pro Lys Ala Leu Ala Pro Leu Leu	
517 522 527 532	
ctg gcg ttc gtg acc aag ccc aac agc gcc ctg gaa tcc tgc tcc ttc	1986
Leu Ala Phe Val Thr Lys Pro Asn Ser Ala Leu Glu Ser Cys Ser Phe	
533 538 543 548	
gcc cgc cac agt ctg ctg cag acg ctg tac aag gtc tag actcaaagcc	2035
Ala Arg His Ser Leu Leu Gln Thr Leu Tyr Lys Val *	
549 554 559	
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gcctacgccca ttgccttgga caggactctg gccacaggca gggcggggtct gtgtcccatg	2155

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 ccgcttagag atttgggggg ctctggcccc gtccttgagg accattocga ggggagtcca 180
 gaggtgtcag taattaacac tgtggatacc tcccatgagg ac atg att cac gac 234
 Met Ile His Asp
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 gcc cag atg gac tac tat ggc acc cgc ctg gca acc tgc tca tca gac 282
 Ala Gln Met Asp Tyr Tyr Gly Thr Arg Leu Ala Thr Cys Ser Ser Asp
 5 10 15 20

agg tcc gtc aaa atc ttt gat gtg cgc aat gga ggg cag atc ctt atc	330
Arg Ser Val Lys Ile Phe Asp Val Arg Asn Gly Gly Gln Ile Leu Ile	
21 26 31 36	
gcc gac ctc agg ggt cat gag ggt cct gtg tgg caa gtg gcc tgg gct	378
Ala Asp Leu Arg Gly His Glu Gly Pro Val Trp Gln Val Ala Trp Ala	
37 42 47 52	
cac ccc atg tac ggc aac atc ctg gca tgc tgc tcc tat gac cgg aaa	426
His Pro Met Tyr Gly Asn Ile Leu Ala Ser Cys Ser Tyr Asp Arg Lys	
53 58 63 68	
gtc att atc tgg aga gag gaa aac ggc acc tgg gag aag agc cac gag	474
Val Ile Ile Trp Arg Glu Glu Asn Gly Thr Trp Glu Lys Ser His Glu	
69 74 79 84	
cat gcg gga cac gac tcc tca gtg aac tgc gtg tgc tgg gcc ccc cat	522
His Ala Gly His Asp Ser Ser Val Asn Ser Val Cys Trp Ala Pro His	
85 90 95 100	
gac tac ggc ctg atc ctg gcc tgt ggg agc tgc gat ggg gcc atc tcc	570
Asp Tyr Gly Leu Ile Leu Ala Cys Gly Ser Ser Asp Gly Ala Ile Ser	
101 106 111 116	
ctg ctg act tac acc ggg gaa ggc caa tgg gaa gta aag aag atc aac	618
Leu Leu Thr Tyr Thr Gly Glu Gly Gln Trp Glu Val Lys Lys Ile Asn	
117 122 127 132	
aac gct cac acc att ggc tgc aat gcc gtc agc tgg gcc cct gct gtt	666
Asn Ala His Thr Ile Gly Cys Asn Ala Val Ser Trp Ala Pro Ala Val	
133 138 143 148	
gta cct gga agc ctc ata gac cac cca tgc ggg cag aaa ccc aat tac	714
Val Pro Gly Ser Leu Ile Asp His Pro Ser Gly Gln Lys Pro Asn Tyr	
149 154 159 164	
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Ile Lys Arg Phe Ala Ser Gly Gly Cys Asp Asn Leu Ile Lys Leu Trp	
165 170 175 180	
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Lys Glu Glu Glu Asp Gly Gln Trp Lys Glu Glu Gln Lys Leu Glu Ala	
181 186 191 196	
cac agt gac tgg gtt cga gat gtg gcc tgg gcc ccc tcc atc ggc ctg	858
His Ser Asp Trp Val Arg Asp Val Ala Trp Ala Pro Ser Ile Gly Leu	
197 202 207 212	
ccc acc agc acc atc gcc agc tgc tcc cag gat ggt cgt gtg ttc att	906
Pro Thr Ser Thr Ile Ala Ser Cys Ser Gln Asp Gly Arg Val Phe Ile	
213 218 223 228	
tgg acc tgt gat gat gcc tca agc aat acg tgg tcc cct aaa ttg ttg	954
Trp Thr Cys Asp Asp Ala Ser Ser Asn Thr Trp Ser Pro Lys Leu Leu	
229 234 239 244	
cac aag ttc aac gat gtg gtg tgg cat gtg agc tgg tcc atc aca gcc	1002

His Lys Phe Asn Asp Val Val Trp His Val Ser Trp Ser Ile Thr Ala	
245 250 255 260	
aac atc ctg gct gtc tct ggt gga gac aat aag gtg acc ctg tgg aag	1050
Asn Ile Leu Ala Val Ser Gly Gly Asp Asn Lys Val Thr Leu Trp Lys	
261 266 271 276	
gag tca gtt gat ggg cag tgg gtg tgc atc agt gat gtc aac aag ggc	1098
Glu Ser Val Asp Gly Gln Trp Val Cys Ile Ser Asp Val Asn Lys Gly	
277 282 287 292	
cag ggc tcc gta tca gca tca gtg aca gag ggc cag cag aac gag cag	1146
Gln Gly Ser Val Ser Ala Ser Val Thr Glu Gly Gln Gln Asn Glu Gln	
293 298 303 308	
tga caag acaggtgggg cctggctccc caccgccag ctccaggact gccccttct	1203
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taatctactg tccagctgaa agcactcatg ttacgaggaa gaaactacaa gtgatgttca	1383
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ggagagtcaa ggag atg act tct acc ttg cca aag gcc ttg gga aga aag	170
Met Thr Ser Thr Leu Pro Lys Ala Leu Gly Arg Lys	
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aca gca tca agg tct cac aca aca ctc cag gga ggc agc tgc tgc cca	218
Thr Ala Ser Arg Ser His Thr Thr Leu Gln Gly Gly Ser Cys Cys Pro	
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gtg ctg tgg aca gca aag ctt cgg tgc agg aaa tta aga ttc ccc ctg	266
Val Leu Trp Thr Ala Lys Leu Arg Cys Arg Lys Leu Arg Phe Pro Leu	
29 34 39 44	

cct	ccc	cct	ccc	cca	tcc	tca	tca	gct	tgg	cca	tgg	cag	ggc	tgg	ggg	314
Pro	Pro	Pro	Pro	Pro	Ser	Ser	Ser	Ala	Trp	Pro	Trp	Gln	Gly	Trp	Gly	
45					50				55						60	

atc	aga	ggt	gaa	cag	gaa	gca	gaa	gga	ccc	ctg	ggg	gag	aca	ggg	cct	362
Ile	Arg	Gly	Glu	Gln	Glu	Ala	Glu	Gly	Pro	Leu	Gly	Glu	Thr	Gly	Pro	
61					66				71						76	

cca	gtg	gga	cca	gag	ctg	agt	ggc	ctc	agg	cag	tgg	cgg	aag	ctg	att	410
Pro	Val	Gly	Pro	Glu	Leu	Ser	Gly	Leu	Arg	Gln	Trp	Arg	Lys	Leu	Ile	
77					82				87						92	

aaa	gga	agg	tac	ggg	gag	tgg	agg	gga	agt	gga	caa	aag	aca	gga	cag	458
Lys	Gly	Arg	Tyr	Gly	Glu	Trp	Arg	Gly	Ser	Gly	Gln	Lys	Thr	Gly	Gln	
93					98				103						108	

cca	tct	tag	aca	caa	tgca	aggggg	agaa	actgaa	gaaa	acagaa	cagag	accac	514
Pro	Ser	*											
109													

tact	ggcaat	aaacagagag	aaagtgaagc	cccatgggtg	aggcacacct	acattactta	574
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agaa	acgtga	gcacattctt	acgcctaggg	caataaatac	atccttgagc	tacacaggct	634
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cttctgtctg	gttctctctc	tccagaaggt	tctgcccgtt	ccccagctc	tgggtacctg	180
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gctctgcac	gcgtcgcc	atg	atg	ggc	cat	cgt	cca	gtg	ctc	gtg	ctc	agc	231
		Met	Met	Gly	His	Arg	Pro	Val	Leu	Val	Leu	Ser	
		1				5							

cag	aac	aca	aag	cgt	gaa	tcc	gga	aga	aaa	gtt	caa	tct	gga	aac	atc	279
Gln	Asn	Thr	Lys	Arg	Glu	Ser	Gly	Arg	Lys	Val	Gln	Ser	Gly	Asn	Ile	
12					17				22						27	

aat	gct	gcc	aag	act	att	gca	gat	atc	atc	cga	aca	tgt	ttg	gga	ccc	327
Asn	Ala	Ala	Lys	Thr	Ile	Ala	Asp	Ile	Ile	Arg	Thr	Cys	Leu	Gly	Pro	
28					33				38						43	

aag tcc atg atg aag atg ctt ttg gac cca atg gga ggc att gtg atg	375
Lys Ser Met Met Lys Met Leu Leu Asp Pro Met Gly Gly Ile Val Met	
44 49 54 59	
acc aat gat ggc aat gcc att ctt cga gag att caa gtc cag cat cca	423
Thr Asn Asp Gly Asn Ala Ile Leu Arg Glu Ile Gln Val Gln His Pro	
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gcg gcc aag tcc atg atc gaa att agc cgg acc cag gat gaa gag gtt	471
Ala Ala Lys Ser Met Ile Glu Ile Ser Arg Thr Gln Asp Glu Glu Val	
76 81 86 91	
gga gat ggg acc aca tca gta att att ctt gca ggg gaa atg ctg tct	519
Gly Asp Gly Thr Thr Ser Val Ile Ile Leu Ala Gly Glu Met Leu Ser	
92 97 102 107	
gta gct gag cac ttc ctg gag cag cag atg cac cca aca gtg gtg atc	567
Val Ala Glu His Phe Leu Glu Gln Gln Met His Pro Thr Val Val Ile	
108 113 118 123	
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Ser Ala Tyr Arg Lys Ala Leu Asp Asp Met Ile Ser Thr Leu Lys Lys	
124 129 134 139	
ata agt atc cca gtc gac atc agt gac agt gat atg atg ctg aac atc	663
Ile Ser Ile Pro Val Asp Ile Ser Asp Ser Asp Met Met Leu Asn Ile	
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Ile Asn Ser Ser Ile Thr Thr Lys Ala Ile Ser Arg Trp Ser Ser Leu	
156 161 166 171	
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Ala Cys Asn Ile Ala Leu Asp Ala Val Lys Met Val Gln Phe Glu Glu	
172 177 182 187	
aat ggt cgg aaa gag att gac ata aaa aaa tat gca aga gtg gaa aag	807
Asn Gly Arg Lys Glu Ile Asp Ile Lys Lys Tyr Ala Arg Val Glu Lys	
188 193 198 203	
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Ile Pro Gly Gly Ile Ile Glu Asp Ser Cys Val Leu Arg Gly Val Met	
204 209 214 219	
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Ile Asn Lys Asp Val Thr His Pro Arg Met Arg Arg Tyr Ile Lys Asn	
220 225 230 235	
cct cgc att gtg ctg ctg gat tct tct ctg gaa tac aag aaa gga gaa	951
Pro Arg Ile Val Leu Leu Asp Ser Ser Leu Glu Tyr Lys Lys Gly Glu	
236 241 246 251	
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Ser Gln Thr Asp Ile Glu Ile Thr Arg Glu Glu Asp Phe Thr Arg Ile	
252 257 262 267	

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268					273					278					283	
caa	ctg	aag	ccc	gat	gtg	gtc	atc	act	gaa	aag	ggc	atc	tca	gat	tta	1095
Gln	Leu	Lys	Pro	Asp	Val	Val	Ile	Thr	Glu	Lys	Gly	Ile	Ser	Asp	Leu	
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Ala	Gln	His	Tyr	Leu	Met	Arg	Ala	Asn	Ile	Thr	Ala	Ile	Arg	Arg	Val	
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cgg	aag	aca	gac	aat	aat	cgc	att	gct	aga	gcc	tgt	ggg	gcc	cgg	ata	1191
Arg	Lys	Thr	Asp	Asn	Asn	Arg	Ile	Ala	Arg	Ala	Cys	Gly	Ala	Arg	Ile	
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Val	Ser	Arg	Pro	Glu	Glu	Leu	Arg	Glu	Asp	Asp	Val	Gly	Thr	Gly	Ala	
332					337					342					347	
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Gly	Leu	Leu	Glu	Ile	Lys	Lys	Ile	Gly	Asp	Glu	Tyr	Phe	Thr	Phe	Ile	
348					353					358					363	
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agc	aaa	gag	att	ctc	tgc	gaa	gta	gaa	cgc	aac	ctc	cag	gat	gcc	atg	1383
Ser	Lys	Glu	Ile	Leu	Ser	Glu	Val	Glu	Arg	Asn	Leu	Gln	Asp	Ala	Met	
380					385					390					395	
caa	gtg	tgt	cgc	aat	gtt	ctc	ctg	gac	cct	cag	ctg	gtg	cca	ggg	ggt	1431
Gln	Val	Cys	Arg	Asn	Val	Leu	Leu	Asp	Pro	Gln	Leu	Val	Pro	Gly	Gly	
396					401					406					411	
ggg	gcc	tcc	gag	atg	gct	gtg	gcc	cat	gcc	ttg	aca	gaa	aaa	tcc	aag	1479
Gly	Ala	Ser	Glu	Met	Ala	Val	Ala	His	Ala	Leu	Thr	Glu	Lys	Ser	Lys	
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Ala	Met	Thr	Gly	Val	Glu	Gln	Trp	Pro	Tyr	Arg	Ala	Val	Ala	Gln	Ala	
428					433					438					443	
cta	gag	gtc	att	cct	cgt	acc	ctg	atc	cag	aac	tgt	ggg	gcc	agc	acc	1575
Leu	Glu	Val	Ile	Pro	Arg	Thr	Leu	Ile	Gln	Asn	Cys	Gly	Ala	Ser	Thr	
444					449					454					459	
atc	cgt	cta	ctt	acc	tcc	ctt	cgg	gcc	aag	cac	acc	cag	gag	aac	tgt	1623
Ile	Arg	Leu	Leu	Thr	Ser	Leu	Arg	Ala	Lys	His	Thr	Gln	Glu	Asn	Cys	
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gag	acc	tgg	ggt	gta	aat	ggt	gag	acg	ggt	act	ttg	gtg	gac	atg	aag	1671
Glu	Thr	Trp	Gly	Val	Asn	Gly	Glu	Thr	Gly	Thr	Leu	Val	Asp	Met	Lys	
476					481					486					491	
gaa	ctg	ggc	ata	tgg	gag	cca	ttg	gct	gtg	aag	ctg	cag	act	tat	aag	1719

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492	497	502	507
aca gca gtg gag acg	gca gtt ctg cta ctg	cga att gat gac atc gtt	1767
Thr Ala Val Glu Thr	Ala Val Leu Leu Leu	Arg Ile Asp Asp Ile Val	
508	513	518	523
tca ggc cac aaa aag	aaa ggc gat gac cag agc	cgg caa ggc ggg gct	1815
Ser Gly His Lys Lys	Lys Gly Asp Asp Gln Ser	Arg Gln Gly Gly Ala	
524	529	534	539
cct gat gct ggc cag	gag tga gt gctaggcaag	gctacttcaa tgcacagaac	1868
Pro Asp Ala Gly Gln Glu *			
540	545		
cagcagagtc tcccccttttc	ctgagccaga gtgccaggaa	caactgtggac gtctttgttc	1928
agaagggatc aggttgggggg	gcagcccccga gtccctttct	gtccagctc agttttccaa	1988
aagacactga catgtaattc	ttctctattg taagggtttcc	atttagtttg cttccgatga	2048
ttaaatttaa gtcatttgaa	aaaaaaaaaa		2078

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agccttctcg ggacccgggg	120
gacgcctaac cccgcgagaa	ccctgcaaatt tttcttctc
ataattggga gaagactcac	180
tggccga atg gca gca gta	gat gac ttg caa ttt
gaa gaa ttt ggc aat	229
Met Ala Ala Val Asp	Asp Leu Gln Phe Glu Glu Phe Gly Asn
1	5 10
gca gcc act tct ctg	aca gca aac cca gat gcc
acc aca gta aac att	277
Ala Ala Thr Ser Leu Thr	Ala Asn Pro Asp Ala Thr Thr Val Asn Ile
15	20 25 30
gag gat cct ggt gaa acc	cca aaa cat cag cca
gga tcc cca aga ggc	325
Glu Asp Pro Gly Glu Thr	Pro Lys His Gln Pro Gly Ser Pro Arg Gly
31	36 41 46
tca gga aga gaa gaa gat	gat gag tta ctg gga
aat gat gac tct gac	373
Ser Gly Arg Glu Glu Asp	Asp Glu Leu Leu Gly Asn Asp Asp Ser Asp
47	52 57 62

aaa act gag tta ctt gct gga cag aag aaa agc tcc ccc ttc tgg aca	421
Lys Thr Glu Leu Leu Ala Gly Gln Lys Lys Ser Ser Pro Phe Trp Thr	
63 68 73 78	
ttt gaa tac tac caa aca ttc ttt gat gtg gac acc tac cag gtc ttt	469
Phe Glu Tyr Tyr Gln Thr Phe Phe Asp Val Asp Thr Tyr Gln Val Phe	
79 84 89 94	
gac aga att aaa gga tct ctt ttg cca ata ccc ggg aaa aac ttt gtg	517
Asp Arg Ile Lys Gly Ser Leu Leu Pro Ile Pro Gly Lys Asn Phe Val	
95 100 105 110	
agg tta tat atc cgc agc aat cca gat ctc tat ggc ccc ttt tgg ata	565
Arg Leu Tyr Ile Arg Ser Asn Pro Asp Leu Tyr Gly Pro Phe Trp Ile	
111 116 121 126	
tgt gcc acg ttg gtc ttt gcc ata gca att agt ggg aat ctt tcc aac	613
Cys Ala Thr Leu Val Phe Ala Ile Ala Ile Ser Gly Asn Leu Ser Asn	
127 132 137 142	
ttc ttg atc cat ctg gga gag aag acg tac cat tat gtg ccc gaa ttc	661
Phe Leu Ile His Leu Gly Glu Lys Thr Tyr His Tyr Val Pro Glu Phe	
143 148 153 158	
cga aaa gtg tcc ata gca gct acc atc atc tat gcc tat gcc tgg ctg	709
Arg Lys Val Ser Ile Ala Ala Thr Ile Ile Tyr Ala Tyr Ala Trp Leu	
159 164 169 174	
gtt cct ctt gca ctc tgg ggt ttc ctc atg tgg aga aac agc aaa gtt	757
Val Pro Leu Ala Leu Trp Gly Phe Leu Met Trp Arg Asn Ser Lys Val	
175 180 185 190	
atg aac atc gtc tcc tat tca ttt ctg gag att gtg tgt gtc tat gga	805
Met Asn Ile Val Ser Tyr Ser Phe Leu Glu Ile Val Cys Val Tyr Gly	
191 196 201 206	
tat tcc ctc ttc att tat atc ccc acc gca ata ctg tgg att atc ccc	853
Tyr Ser Leu Phe Ile Tyr Ile Pro Thr Ala Ile Leu Trp Ile Ile Pro	
207 212 217 222	
cag aaa gct gtt cgt tgg att cta gtc atg att gcc ctg ggc atc tca	901
Gln Lys Ala Val Arg Trp Ile Leu Val Met Ile Ala Leu Gly Ile Ser	
223 228 233 238	
gga tct ctc ttg gca atg aca ttt tgg cca gct gtt cgt gag gat aac	949
Gly Ser Leu Leu Ala Met Thr Phe Trp Pro Ala Val Arg Glu Asp Asn	
239 244 249 254	
cga cgc gtt gca ttg gcc aca att gtg aca att gtg ttg ctc cat atg	997
Arg Arg Val Ala Leu Ala Thr Ile Val Thr Ile Val Leu Leu His Met	
255 260 265 270	
ctg ctt tct gtg ggc tgc ttg gca tac ttt ttt gat gca cca gag atg	1045
Leu Leu Ser Val Gly Cys Leu Ala Tyr Phe Phe Asp Ala Pro Glu Met	
271 276 281 286	

gac cat ctc cca aca act aca gct act cca aac caa aca gtt gct gca 1093
 Asp His Leu Pro Thr Thr Thr Ala Thr Pro Asn Gln Thr Val Ala Ala
 287 292 297 302

gcc aag tcc agc taa tgaggaaaga ctacttgag ataccctctc ctgctgaag 1148
 Ala Lys Ser Ser *
 303

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atccactgca ggaaagcaga atgagcagag ccagcagaac tgatggagtg gcacaaattc 1268

ccagtgtctg gatggtgcc cactggcgcc taatcaccg ttaacaagc agaaattaaa 1328

tggtgctcag cacatgtgtc tttcagctct tctttttcac ccatggatga tcattgcgag 1388

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ggaaaattct gatgtcctct ctctgaatta tgtacagact acctggggga tctctttctc 1568

tccaaatggt agccatcctg aagtagccga acagtagaaa ctttgggtggg gattaaccgg 1628

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 Met Thr Ala His Ser Phe Ala Leu Pro
 1 5

gtc atc atc ttc acc acg ttc tgg ggc ctc gtc ggc atc gcc ggg ccc 160
 Val Ile Ile Phe Thr Thr Phe Trp Gly Leu Val Gly Ile Ala Gly Pro
 10 15 20 25

tgg ttc gtg ccg aag gga ccc aac cgc gga gtg atc atc acc atg ctg 208
 Trp Phe Val Pro Lys Gly Pro Asn Arg Gly Val Ile Ile Thr Met Leu
 26 31 36 41

gtc gcc acc gcc gtc tgc tgt tac ctc ttc tgg ctc atc gcc atc ctg 256
 Val Ala Thr Ala Val Cys Cys Tyr Leu Phe Trp Leu Ile Ala Ile Leu

42

47

52

57

gcg cag ctg aac ccc ctg ttc ggg ccc cag ctg aag aat gag acc atc
 Ala Gln Leu Asn Pro Leu Phe Gly Pro Gln Leu Lys Asn Glu Thr Ile
 58 63 68 73

304

tgg tac gtg cgc ttc ctg tgg gag tga cccgc cccccccgac ccaggtgccc
 Trp Tyr Val Arg Phe Leu Trp Glu *
 74 79

356

agctctcgga atgactgtgg ctccactgtc cctgacaacc ccttcgtccg gaccctcccc

416

cacacaacta tgtctggtca ccagctccct cctgctggca cccagagacc cggacccgca

476

gggcctgcct ggttcctgga agtcttccca gtcttccag ccagccggg cctggggag

536

ccctgggcac agcagcggcc gaggggatgt cctgctccaa taccgcact gctctggagt

596

ttgccctctt tcccaaggag atgctgctgg ggagctggta tgggtgggggt ctttcccttt

656

acagacgggg cagatgccag gactcagccc atcctgagga ggacacgtgt cctcatggag

716

aggggtgctcc ggcccaggcg ggggagtcgg tgcccagtcg gcagctctgc caccatcctg

776

ctgggaactg ggggggcctc tattgggtta taggcaaggc cttttctctg gcatggaatt

836

gttaattttc tgacacgtct agatgtgaaa tttctgaaaa tgttgaagca gagaaacatt

896

cacacacaaa aagcaacata gtcattgtggg tccagatggc ctcagtccca gatgttgga

956

ccctttgctg tgtctcctca gactatcctg ttccgcctcc tgccacctgg acctcctca

1016

gtggatgtct tccctcccc gacccagcc tgctcagtcg agcacagtgc aggtttggct

1076

ctgacttggg cctttggctg cagtgggggt ggatttcaga gcctctcatg gcagcatcta

1136

agtgaccaga gctgggatga gagaggggaa ggggcaatgt gactggcgt atgggacggg

1196

ccagccctgc tctgagcca gccccgcct ctgccccctg gcctggggt ctgtgctagg

1256

gatggtgaag aatggggcg tgccagcctg gcaggagtgg gaagcaaacac gcaggggtcc

1316

cggacctctc cagccttgcc ctcacgctta cccgagctcc cagtgtggtt agcacagagc

1376

tcaccacact tgcttggtc ccagctgggg cctgtcctca ctggtgctcc aggggaagaa

1436

acgacagcct cacttctgta tggactgctg atgtggcctg ccatcctgtt cagcgggcat

1496

tgtctttgga gcagcaggag aataggatgc ctctcactca catgccagtt cctggctggc

1556

cagctgctca gggctcaggc tggggcctcc cattgacatc cccccctac actccctctc

1616

tgagcctccg tcgccccctc tgttgggtaa ggggtgtgag tgtgacttgt gctgaaaacc

1676

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1717

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (6)..(1160)

<400> 264

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caa acc caa aaa aag aga tct ctc gag gat ccg aat tcg cgg ccg cgt	95	
Gln Thr Gln Lys Lys Arg Ser Leu Glu Asp Pro Asn Ser Arg Pro Arg		
15 20 25 30		
cga ccg cgg tct atg gct gcg act tct cta atg tct gct ttg gct gcc	143	
Arg Pro Arg Ser Met Ala Ala Thr Ser Leu Met Ser Ala Leu Ala Ala		
31 36 41 46		
cgg ctg ctg cag ccc gcg cac agc tgc tcc ctt cgc ctt cgc cct ttc	191	
Arg Leu Leu Gln Pro Ala His Ser Cys Ser Leu Arg Leu Arg Pro Phe		
47 52 57 62		
cac ctc gcg gca gtt cga aat gaa gct gtt gtc att tct gga agg aaa	239	
His Leu Ala Ala Val Arg Asn Glu Ala Val Val Ile Ser Gly Arg Lys		
63 68 73 78		
ctg gcc cag cag atc aag cag gaa gtg cgg cag gag gta gaa gag tgg	287	
Leu Ala Gln Gln Ile Lys Gln Glu Val Arg Gln Glu Val Glu Glu Trp		
79 84 89 94		
gtg gcc tca ggc aac aaa cgg cca cac ctg agt gtg atc ctg gtt ggc	335	
Val Ala Ser Gly Asn Lys Arg Pro His Leu Ser Val Ile Leu Val Gly		
95 100 105 110		
gag aat cct gca agt cac tcc tat gtc ctc aac aaa acc agg gca gct	383	
Glu Asn Pro Ala Ser His Ser Tyr Val Leu Asn Lys Thr Arg Ala Ala		
111 116 121 126		
gca gtt gtg gga atc aac agt gag aca att atg aaa cca gct tca att	431	
Ala Val Val Gly Ile Asn Ser Glu Thr Ile Met Lys Pro Ala Ser Ile		
127 132 137 142		
tca gag gaa gaa ttg ttg aat tta atc aat aaa ctg aat aat gat gat	479	
Ser Glu Glu Glu Leu Leu Asn Leu Ile Asn Lys Leu Asn Asn Asp Asp		
143 148 153 158		
aat gta gat ggc ctc ctt gtt cag ttg cct ctt cca gag cat att gat	527	
Asn Val Asp Gly Leu Leu Val Gln Leu Pro Leu Pro Glu His Ile Asp		
159 164 169 174		
gag aga agg atc tgc aat gct gtt tct cca gac aag gat gtt gat ggc	575	

Glu	Arg	Arg	Ile	Cys	Asn	Ala	Val	Ser	Pro	Asp	Lys	Asp	Val	Asp	Gly	
175					180					185					190	
ttt	cat	gta	att	aat	gta	gga	cga	atg	tgt	ttg	gat	cag	tat	tcc	atg	623
Phe	His	Val	Ile	Asn	Val	Gly	Arg	Met	Cys	Leu	Asp	Gln	Tyr	Ser	Met	
191					196					201					206	
tta	ccg	gct	act	cca	tgg	ggt	gtg	tgg	gaa	ata	atc	aag	cga	act	ggc	671
Leu	Pro	Ala	Thr	Pro	Trp	Gly	Val	Trp	Glu	Ile	Ile	Lys	Arg	Thr	Gly	
207					212					217					222	
att	cca	acc	cta	ggg	aag	aat	gtg	ggt	gtg	gct	gga	agg	tca	aaa	aac	719
Ile	Pro	Thr	Leu	Gly	Lys	Asn	Val	Val	Val	Ala	Gly	Arg	Ser	Lys	Asn	
223					228					233					238	
gtt	gga	atg	ccc	att	gca	atg	tta	ctg	cac	aca	gat	ggg	gcg	cat	gaa	767
Val	Gly	Met	Pro	Ile	Ala	Met	Leu	Leu	His	Thr	Asp	Gly	Ala	His	Glu	
239					244					249					254	
cgt	ccc	gga	ggt	gat	gcc	act	gtt	aca	ata	tct	cat	cga	tat	act	ccc	815
Arg	Pro	Gly	Gly	Asp	Ala	Thr	Val	Thr	Ile	Ser	His	Arg	Tyr	Thr	Pro	
255					260					265					270	
aaa	gag	cag	ttg	aag	aaa	cat	aca	att	ctt	gca	gat	att	gta	ata	tct	863
Lys	Glu	Gln	Leu	Lys	Lys	His	Thr	Ile	Leu	Ala	Asp	Ile	Val	Ile	Ser	
271					276					281					286	
gct	gca	ggt	att	cca	aat	ctg	atc	aca	gca	gat	atg	atc	aag	gaa	gga	911
Ala	Ala	Gly	Ile	Pro	Asn	Leu	Ile	Thr	Ala	Asp	Met	Ile	Lys	Glu	Gly	
287					292					297					302	
gca	gca	gtc	att	gat	gtg	gga	ata	aat	aga	gtt	cac	gat	cct	gta	act	959
Ala	Ala	Val	Ile	Asp	Val	Gly	Ile	Asn	Arg	Val	His	Asp	Pro	Val	Thr	
303					308					313					318	
gcc	aaa	ccc	aag	ttg	gtt	gga	gat	gtg	gat	ttt	gaa	gga	gtc	aga	caa	1007
Ala	Lys	Pro	Lys	Leu	Val	Gly	Asp	Val	Asp	Phe	Glu	Gly	Val	Arg	Gln	
319					324					329					334	
aaa	gct	ggg	tat	atc	act	cca	gtt	cct	gga	ggt	gtt	ggc	ccc	atg	aca	1055
Lys	Ala	Gly	Tyr	Ile	Thr	Pro	Val	Pro	Gly	Gly	Val	Gly	Pro	Met	Thr	
335					340					345					350	
gtg	gca	atg	cta	atg	aag	aat	acc	att	att	gct	gca	aaa	aag	gtg	ctg	1103
Val	Ala	Met	Leu	Met	Lys	Asn	Thr	Ile	Ile	Ala	Ala	Lys	Lys	Val	Leu	
351					356					361					366	
agg	ctt	gaa	gag	cga	gaa	gtg	ctg	aag	tct	aaa	gag	ctt	ggg	gta	gcc	1151
Arg	Leu	Glu	Glu	Arg	Glu	Val	Leu	Lys	Ser	Lys	Glu	Leu	Gly	Val	Ala	
367					372					377					382	
act	aat	taa	ctactgt	gtcttctgtg	tcacaaaacag	cactccaggc	cagctcaaga									1207
Thr	Asn	*														
383																
agcaaagcag	gccaatagaa	atgcaatatt	tttaatttat	tctactgaaa	tggtttaaaa											1267

tgatgccttg tatttattga aagcttaa at ggggtgggtgt ttctgcacat acctctgcag 1327
 tacctcacca gggagcattc cagtatcatg cagggtcctg tgatctagcc aggagcagcc 1387
 attaacctag tgattaatat gggagacatt accatatgga ggatggatgc ttcactttgt 1447
 caagcacctc agttacacat tcgccttttc taggattgca tttcccaagt gctattgcaa 1507
 taacagttga tactcatttt aggtaccaa ccttttgagt tcaactgac aaaccaaagg 1567
 aaaagtgttg ctagagaaaa ttagggaaaa ggtgaaaaag aaaaaatggt agtaattgag 1627
 cagaaaaaaa ttaatttata tatgtattga ttggcaacca gatttatcta agtagaactg 1687
 aattggctag gaaaaaagaa aaactgcatg ttaatcattt tcctaagctg tccttttgag 1747
 gcttagtcag tttattggga aaatgtttag gattattcct tgctattagt actcatttta 1807
 tgtatgttac ccttcagtaa gttctcccca ttttagtttt ctaggactga aaggattcct 1867
 ttctacatta tacatgtgtg ttgtcatatt tggtttttgc tatatacttt aacttcattg 1927
 ttaaattttt gtattgtata gtttcttttg tgtatcttaa aacctatttt tgaaaaacaa 1987
 acttggcttg ataactcattt gggcagcttg ggtaagtacg caacttactt ttccacaaaa 2047
 gaactgtcag cagctgcctg cttttctgtg atgtatgtat cctgttgact tttccagaaa 2107
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 ttctttttta ataaaacaca tctgtctggt atggtatgaa aaaaaaaa 2215

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 <212> DNA
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 cggagaaacg tttctctttc ctctcagttt gcgcacacc atg gcg gcc cct gcc 114
 Met Ala Ala Pro Ala
 1
 cag cag act act cag cct ggc ggc ggg aag cgc aaa ggc aag gct cag 162
 Gln Gln Thr Thr Gln Pro Gly Gly Gly Lys Arg Lys Gly Lys Ala Gln
 6 11 16 21
 tat gtg ctg gcc aag cgc gct cgg cgc tgc gac gct ggc ggg ccc cgt 210
 Tyr Val Leu Ala Lys Arg Ala Arg Arg Cys Asp Ala Gly Gly Pro Arg

22	27	32	37	
cag cta gag ccc ggg cta cag ggc atc ctc atc acc tgc aat atg aac				258
Gln Leu Glu Pro Gly Leu Gln Gly Ile Leu Ile Thr Cys Asn Met Asn				
38	43	48	53	
gag cgc aag tgc gtg gag gag gcc tac agc ctc ctc aac gaa tac ggc				306
Glu Arg Lys Cys Val Glu Glu Ala Tyr Ser Leu Leu Asn Glu Tyr Gly				
54	59	64	69	
gac gac atg tat ggg cca gaa aag ttt aca gac aag gat cag cag ccc				354
Asp Asp Met Tyr Gly Pro Glu Lys Phe Thr Asp Lys Asp Gln Gln Pro				
70	75	80	85	
tct gga agt gag gga gag gat gat gat gcg gag gct gcc ttg aag aaa				402
Ser Gly Ser Glu Gly Glu Asp Asp Asp Ala Glu Ala Ala Leu Lys Lys				
86	91	96	101	
gaa gtt ggt gac att aag gca tct aca gag atg agg tta aga aga ttc				450
Glu Val Gly Asp Ile Lys Ala Ser Thr Glu Met Arg Leu Arg Arg Phe				
102	107	112	117	
cag tca gtg gaa agt gga gca aat aac gtt gtc ttc atc agg aca ctt				498
Gln Ser Val Glu Ser Gly Ala Asn Asn Val Val Phe Ile Arg Thr Leu				
118	123	128	133	
ggg ata gag cct gag aaa ttg gtg cat cat att ctc cag gat atg tac				546
Gly Ile Glu Pro Glu Lys Leu Val His His Ile Leu Gln Asp Met Tyr				
134	139	144	149	
aaa acc aag aaa aag aag act cga gtt att ttg cga atg tta ccc atc				594
Lys Thr Lys Lys Lys Lys Thr Arg Val Ile Leu Arg Met Leu Pro Ile				
150	155	160	165	
tca ggc aca tgc aag gct ttt tta gaa gat atg aaa aaa tat gca gaa				642
Ser Gly Thr Cys Lys Ala Phe Leu Glu Asp Met Lys Lys Tyr Ala Glu				
166	171	176	181	
aca ttt ttg gaa ccc tgg ttt aaa gct cca aac aaa ggg aca ttt cag				690
Thr Phe Leu Glu Pro Trp Phe Lys Ala Pro Asn Lys Gly Thr Phe Gln				
182	187	192	197	
att gtg tac aaa tct cga aat aac agt cat gtg aat aga gaa gaa gtt				738
Ile Val Tyr Lys Ser Arg Asn Asn Ser His Val Asn Arg Glu Glu Val				
198	203	208	213	
atc aga gaa ttg gca gga ata gtg tgc acc ctc aat tca gaa aat aaa				786
Ile Arg Glu Leu Ala Gly Ile Val Cys Thr Leu Asn Ser Glu Asn Lys				
214	219	224	229	
gtg gat ctc acc aat cca cag tac aca gtg gta gta gaa atc atc aaa				834
Val Asp Leu Thr Asn Pro Gln Tyr Thr Val Val Val Glu Ile Ile Lys				
230	235	240	245	
gct gtc tgt tgc ctg agt gtt gtg aaa gat tac atg ttg ttt aga aaa				882
Ala Val Cys Cys Leu Ser Val Val Lys Asp Tyr Met Leu Phe Arg Lys				
246	251	256	261	

tac aat ctc cag gag gtg gtg aag agc cct aag gat ccg tca cag ctt	930
Tyr Asn Leu Gln Glu Val Val Lys Ser Pro Lys Asp Pro Ser Gln Leu	
262 267 272 277	

aac tca aag cag gga aat ggg aaa gaa gct aaa ctg gaa tct gcg gac	978
Asn Ser Lys Gln Gly Asn Gly Lys Glu Ala Lys Leu Glu Ser Ala Asp	
278 283 288 293	

aaa tca gac caa aac aac aca gca gaa gga aaa aat aac cag cag gta	1026
Lys Ser Asp Gln Asn Asn Thr Ala Glu Gly Lys Asn Asn Gln Gln Val	
294 299 304 309	

cca gag aat act gag gag ctg ggg cag aca aaa cca acg tct aat cca	1074
Pro Glu Asn Thr Glu Glu Leu Gly Gln Thr Lys Pro Thr Ser Asn Pro	
310 315 320 325	

cag gtg gta aat gag gga gga gcc aaa cct gaa ctt gca agt caa gcc	1122
Gln Val Val Asn Glu Gly Gly Ala Lys Pro Glu Leu Ala Ser Gln Ala	
326 331 336 341	

aca gaa gga tcc aag tca aat gaa aat gac ttc tca tag gaagtcattt	1171
Thr Glu Gly Ser Lys Ser Asn Glu Asn Asp Phe Ser *	
342 347 352	

gggtgttgag ctgacagtcc agtgtcgcaa ttttgaagg caagatgtga gagagacgag	1231
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 <220>
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Met	
1	

agg gca gac gag atc aaa gat gcc atc tac gtg acc atg gag atc ctg	166
Arg Ala Asp Glu Ile Lys Asp Ala Ile Tyr Val Thr Met Glu Ile Leu	
2 7 12 17	

tcc aac tgg ggc aac tcg tgg tgg gtg ggt ctc aca gaa gtc gag ttc	214
Ser Asn Trp Gly Asn Ser Trp Trp Val Gly Leu Thr Glu Val Glu Phe	
18 23 28 33	

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Gly Ser Arg Phe Arg Asp Gly Pro Pro Leu Arg Gly Ser Asn Met Asp	
161 166 171 176	
ttc aga gaa ccc aca gaa gag gaa aga gca cag aga cca cga ctc cag	696
Phe Arg Glu Pro Thr Glu Glu Glu Arg Ala Gln Arg Pro Arg Leu Gln	
177 182 187 192	
ctt aaa cct cga aca gtc gcg acg ccc ctc aat caa gta gcc aat ccc	744
Leu Lys Pro Arg Thr Val Ala Thr Pro Leu Asn Gln Val Ala Asn Pro	
193 198 203 208	
aac tct gct atc ttc ggg ggt gcc agg cct aga gag gaa gtc gtt caa	792

Asn Ser Ala Ile Phe Gly Gly Ala Arg Pro Arg Glu Glu Val Val Gln
 209 214 219 224

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 Lys Glu Gln Glu *
 225

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gaagagcggg agggagtcca cggagaagat gcagtgaatg cttgcatgca ttcacacgtg 1567

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ccctgttgcc tgtgtgtgt gtggatctgt tctagtata ggcaacataa tgagatactg 1807

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 atg gcg gac ttc gac acc tac gac gat cgg gcc tac agc agc ttc ggc 168
 Met Ala Asp Phe Asp Thr Tyr Asp Asp Arg Ala Tyr Ser Ser Phe Gly
 1 5 10 15
 ggc ggc aga ggg tcc cgc ggc agt gct ggt ggc cat ggt tcc cgt agc 216
 Gly Gly Arg Gly Ser Arg Gly Ser Ala Gly Gly His Gly Ser Arg Ser
 17 22 27 32
 cag aag gag ttg ccc aca gag ccc ccc tac aca gca tac gta gga aat 264
 Gln Lys Glu Leu Pro Thr Glu Pro Pro Tyr Thr Ala Tyr Val Gly Asn
 33 38 43 48
 cta cct ttc aat acg gtt cag ggc gac ata gat gct atc ttt aag gat 312
 Leu Pro Phe Asn Thr Val Gln Gly Asp Ile Asp Ala Ile Phe Lys Asp
 49 54 59 64
 ctc agc ata agg agt gta cgg cta gtc aga gac aaa gac aca gat aaa 360
 Leu Ser Ile Arg Ser Val Arg Leu Val Arg Asp Lys Asp Thr Asp Lys
 65 70 75 80
 ttt aaa gga ttc tgc tat gta gaa ttc gat gaa gtg gat tcc ctt aag 408
 Phe Lys Gly Phe Cys Tyr Val Glu Phe Asp Glu Val Asp Ser Leu Lys
 81 86 91 96
 gaa gcc ttg aca tac gat ggt gca ctg ttg ggc gat cgg tca ctt cgt 456
 Glu Ala Leu Thr Tyr Asp Gly Ala Leu Leu Gly Asp Arg Ser Leu Arg
 97 102 107 112
 gtg gac att gca gaa ggc aga aaa caa gat aaa ggt ggc ttt gga ttc 504
 Val Asp Ile Ala Glu Gly Arg Lys Gln Asp Lys Gly Gly Phe Gly Phe

113	118	123	128	
aga aaa ggt gga cca gat gac aga gga atg ggt agc tct cga gaa tct				552
Arg Lys Gly Gly Pro Asp Asp Arg Gly Met Gly Ser Ser Arg Glu Ser				
129	134	139	144	
aga ggt gga tgg gat tcc cgg gat gac ttc aat tct ggc ttc agg gat				600
Arg Gly Gly Trp Asp Ser Arg Asp Asp Phe Asn Ser Gly Phe Arg Asp				
145	150	155	160	
gac ttc tta ggg ggc agg gga ggt agt cgc cca ggc gac cgg cga aca				648
Asp Phe Leu Gly Gly Arg Gly Gly Ser Arg Pro Gly Asp Arg Arg Thr				
161	166	171	176	
ggc ccc ccc atg ggc agc cgc ttc aga gat ggc cct ccc ctc cgt gga				696
Gly Pro Pro Met Gly Ser Arg Phe Arg Asp Gly Pro Pro Leu Arg Gly				
177	182	187	192	
tcc aac atg gat ttc aga gaa ccc aca gaa gag gaa aga gca cag aga				744
Ser Asn Met Asp Phe Arg Glu Pro Thr Glu Glu Glu Arg Ala Gln Arg				
193	198	203	208	
cca cga ctc cag ctt aaa cct cga aca gtc gcg acg ccc ctc aat caa				792
Pro Arg Leu Gln Leu Lys Pro Arg Thr Val Ala Thr Pro Leu Asn Gln				
209	214	219	224	
gta gcc aat ccc aac tct gct atc ttc ggg ggt gcc agg cct aga gag				840
Val Ala Asn Pro Asn Ser Ala Ile Phe Gly Gly Ala Arg Pro Arg Glu				
225	230	235	240	
gaa gtc gtt caa aag gag caa gaa tga gcctg cgggtgggag ggaatggggc				892
Glu Val Val Gln Lys Glu Gln Glu *				
241	246			
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cactcctgcg cctgccattg gcctcctcac agcggaaca cagcttgtga gtgcatgtca				1012
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attcagctat	atgacagaaa	gtaaatctat	ggatatggta	ttttgtgaat	gatcttttaa	2632
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cgactttttt	tttttttttt	aattcttcag	ctaaaacagc	ggaagaggtg	atttattata	180
tggttggttac	actcggccac	aaataaacac	agaaatagtc	cagaatgtca	cagggtccagg	240

gcagaggacc aacatgggca ttttgtttat gagcaagggtg ggtctcagag gtgatcggcg 300

atcagagggc gatgaagttc tagatccatt gagacaagct ctagacagta gcatgcagtc 360

ccacaacttg taccagcatc cccagcgtct ggcattcc atg ttt ctg ctc ctg 413
Met Phe Leu Leu Leu
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tgg cct cca cgg tgc aac aag cta gcg gtt tac ttg gac ctc tgc ctc 461
Trp Pro Pro Arg Cys Asn Lys Leu Ala Val Tyr Leu Asp Leu Cys Leu
6 11 16 21

atc ttt ctt ctt ttg cgc ttc agc ctg cgc att cgc ttc ttc ctc cac 509
Ile Phe Leu Leu Leu Arg Phe Ser Leu Arg Ile Arg Phe Phe Leu His
22 27 32 37

ttg gct ctc atg gcg cag agg ttt cca aaa aaa tgg cgc tac cca cgc 557
Leu Ala Leu Met Ala Gln Arg Phe Pro Lys Lys Trp Arg Tyr Pro Arg
38 43 48 53

gtc cgc cca cgc gtc cgc gga cgc gtg ggt ttt ttt gga aac ctc tgc 605
Val Arg Pro Arg Val Arg Gly Arg Val Gly Phe Phe Gly Asn Leu Cys
54 59 64 69

gcc atg aga gcc aag tgg agg aag aag cga atg cgc agg ctg aag cgc 653
Ala Met Arg Ala Lys Trp Arg Lys Lys Arg Met Arg Arg Leu Lys Arg
70 75 80 85

aaa aga aga aag atg agg cag agg tcc aag taa accgctag cttgttgcac 704
Lys Arg Arg Lys Met Arg Gln Arg Ser Lys *
86 91 96

cgtggaggcc acaggagcag aaacatggaa tgccagacgc tggggatgct ggtacaagtt 764

gtgggactgc atgctactgt ctagagcttg tctcaatgga tctagaactt catcgccctc 824

tgatcgccga tcacctctga gaccacatt gtcataaac aaaatgccca tgttggtctc 884

ctgccctgga cctgtgacat tctggactat ttctgtgttt atttgtggcc gagtgttaaca 944

accatataat aaatcacctc ttccgctggt ttagctgaag aattaaaaaa aaaaaaaa 1002

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<220>
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cgagcgttgc cgggccagg tcaagcggag ggctccgacg gcgcggacgg agogaagcgc	180
cgagcc atg gcg cac caa acg ggc atc cac gcc acg gaa gag ctg aag	228
Met Ala His Gln Thr Gly Ile His Ala Thr Glu Glu Leu Lys	
1 5 10	
gaa ttc ttt gcc aag gca cgg gct ggc tct gtg cgg ctc atc aag gtt	276
Glu Phe Phe Ala Lys Ala Arg Ala Gly Ser Val Arg Leu Ile Lys Val	
15 20 25 30	
gtg att gag gac gag cag ctc gtg ctg ggt gcc tcg cag gag cca gta	324
Val Ile Glu Asp Glu Gln Leu Val Leu Gly Ala Ser Gln Glu Pro Val	
31 36 41 46	
ggc cgc tgg gat cag gac tat gac agg gcc gtg ctg cca ctg ctg gac	372
Gly Arg Trp Asp Gln Asp Tyr Asp Arg Ala Val Leu Pro Leu Leu Asp	
47 52 57 62	
gcc cag cag ccc tgc tac ctg ctc tac cgc ctc gac tca cag aat gct	420
Ala Gln Gln Pro Cys Tyr Leu Leu Tyr Arg Leu Asp Ser Gln Asn Ala	
63 68 73 78	
cag ggc ttc gaa tgg ctc ttc ctc gcc tgg tcg cct gat aac tcc ccc	468
Gln Gly Phe Glu Trp Leu Phe Leu Ala Trp Ser Pro Asp Asn Ser Pro	
79 84 89 94	
gtg cgg ctg aag atg ctg tac gcg gcc acg cgg gcc aca gtg aaa aag	516
Val Arg Leu Lys Met Leu Tyr Ala Ala Thr Arg Ala Thr Val Lys Lys	
95 100 105 110	
gag ttt gga ggt ggc cac atc aag gat gag ctc ttc ggg act gtg aag	564
Glu Phe Gly Gly Gly His Ile Lys Asp Glu Leu Phe Gly Thr Val Lys	
111 116 121 126	
gat gac ctc tct ttt gct ggg tac cag aaa cac ctg tcg tcc tgt gcg	612
Asp Asp Leu Ser Phe Ala Gly Tyr Gln Lys His Leu Ser Ser Cys Ala	
127 132 137 142	
gca cct gcc ccg ctg acc tcg gct gag aga gag ctc cag cag atc cgc	660
Ala Pro Ala Pro Leu Thr Ser Ala Glu Arg Glu Leu Gln Gln Ile Arg	
143 148 153 158	
att aac gag gtg aag aca gag atc agt gtg gaa agc aag cac cag acc	708
Ile Asn Glu Val Lys Thr Glu Ile Ser Val Glu Ser Lys His Gln Thr	
159 164 169 174	
ctg cag ggc ctc gcc ttc ccc ctg cag cct gag gcc cag cgg gca ctc	756
Leu Gln Gly Leu Ala Phe Pro Leu Gln Pro Glu Ala Gln Arg Ala Leu	
175 180 185 190	
cag cag ctc aag cag aaa atg gtc aac tac atc cag atg aag ctg gac	804
Gln Gln Leu Lys Gln Lys Met Val Asn Tyr Ile Gln Met Lys Leu Asp	
191 196 201 206	

cta gag cgg gaa acc att gag ctg gtg cac aca gag ccc acg gat gtg	852
Leu Glu Arg Glu Thr Ile Glu Leu Val His Thr Glu Pro Thr Asp Val	
207 212 217 222	
gcc cag ctg ccc tcc cgg gtg ccc cga gat gct gcc cgc tac cac ttc	900
Ala Gln Leu Pro Ser Arg Val Pro Arg Asp Ala Ala Arg Tyr His Phe	
223 228 233 238	
ttc ctc tac aag cac acc cat gag ggc gac ccc ctt gag tct gta gtg	948
Phe Leu Tyr Lys His Thr His Glu Gly Asp Pro Leu Glu Ser Val Val	
239 244 249 254	
ttc atc tac tcc atg ccg ggg tac aag tgc agc atc aag gag cga atg	996
Phe Ile Tyr Ser Met Pro Gly Tyr Lys Cys Ser Ile Lys Glu Arg Met	
255 260 265 270	
ctc tac tcc agc tgc aag agc cgc ctc ctc gac tcc gtg gag cag gac	1044
Leu Tyr Ser Ser Cys Lys Ser Arg Leu Leu Asp Ser Val Glu Gln Asp	
271 276 281 286	
ttc cat ctg gag atc gcc aag aaa att gag att ggc gat ggg gca gag	1092
Phe His Leu Glu Ile Ala Lys Lys Ile Glu Ile Gly Asp Gly Ala Glu	
287 292 297 302	
ctg acg gca gag ttc ctc tac gac gag gtg cac ccc aag caa cac gcc	1140
Leu Thr Ala Glu Phe Leu Tyr Asp Glu Val His Pro Lys Gln His Ala	
303 308 313 318	
ttc aag cag gcc ttc gcc aag ccc aag ggc cca ggg ggc aag cgg ggc	1188
Phe Lys Gln Ala Phe Ala Lys Pro Lys Gly Pro Gly Gly Lys Arg Gly	
319 324 329 334	
cat aag cgc ctc atc cgc ggc ccg ggt gaa aat ggg gat gac agc tag	1236
His Lys Arg Leu Ile Arg Gly Pro Gly Glu Asn Gly Asp Asp Ser *	
335 340 345 350	
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aaaaaaaaaa aa	1668

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ccgaacccgg gagctggcgc c atg gtg ctg ttg cac gtg ctg ttt gag cac 111
Met Val Leu Leu His Val Leu Phe Glu His
1 5

gcg gtc ggc tac gcg ctg ctg gcg ctg aag gaa gtg gag gag atc agt 159
Ala Val Gly Tyr Ala Leu Leu Ala Leu Lys Glu Val Glu Glu Ile Ser
11 16 21 26

ctg ctg cag ccg cag gtg gag gag tcc gtg ctc aac ctg ggc aaa ttc 207
Leu Leu Gln Pro Gln Val Glu Glu Ser Val Leu Asn Leu Gly Lys Phe
27 32 37 42

cac agc atc gtt cgt ctg gtg gcc ttt tgt ccc ttt gcc tca tcc cag 255
His Ser Ile Val Arg Leu Val Ala Phe Cys Pro Phe Ala Ser Ser Gln
43 48 53 58

gtt gcc ttg gaa aat gcc aac gcc gtg tct gaa ggg gtt gtt cat gag 303
Val Ala Leu Glu Asn Ala Asn Ala Val Ser Glu Gly Val Val His Glu
59 64 69 74

gac ctc cgc ctg ctc ttg gag acc cac ctg ccg tcc aaa aag aag aaa 351
Asp Leu Arg Leu Leu Leu Glu Thr His Leu Pro Ser Lys Lys Lys Lys
75 80 85 90

gta ctc ttg gga gtt ggg gat ccc aag att ggt gcc gca ata cag gag 399
Val Leu Leu Gly Val Gly Asp Pro Lys Ile Gly Ala Ala Ile Gln Glu
91 96 101 106

gag tta ggg tac aac tgc cag act gga gga gtc ata gct gag atc ctg 447
Glu Leu Gly Tyr Asn Cys Gln Thr Gly Gly Val Ile Ala Glu Ile Leu
107 112 117 122

cga gga gtt cgt ctg cac ttc cac aat ctg gtg aag ggt ctg acc gat 495
Arg Gly Val Arg Leu His Phe His Asn Leu Val Lys Gly Leu Thr Asp
123 128 133 138

ctg tca gct tgt aaa gca cag ctg ggg ctg gga cac agc tat tcc cgt 543
Leu Ser Ala Cys Lys Ala Gln Leu Gly Leu Gly His Ser Tyr Ser Arg
139 144 149 154

gcc aaa gtt aag ttt aat gtg aac cgg gtg gac aat atg atc atc cag 591
Ala Lys Val Lys Phe Asn Val Asn Arg Val Asp Asn Met Ile Ile Gln

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Ser Ile Ser Leu Leu	Asp Gln Leu Asp Lys	Asp Ile Asn Thr Phe	Ser				
171	176	181	186				
atg cgt gtc agg gag	tgg tac ggg tat cac	ttt ccg gag ctg gtg	aag	687			
Met Arg Val Arg Glu	Trp Tyr Gly Tyr His	Phe Pro Glu Leu Val	Lys				
187	192	197	202				
atc atc aac gac aat	gcc aca tac tgc cgt	ctt gcc cag ttt att	gga	735			
Ile Ile Asn Asp Asn	Ala Thr Tyr Cys Arg	Leu Ala Gln Phe Ile	Gly				
203	208	213	218				
aac cga agg gaa ctg	aat gag gac aag ctg	gag aag ctg gag gag	ctg	783			
Asn Arg Arg Glu Leu	Asn Glu Asp Lys Leu	Glu Lys Leu Glu Glu	Leu				
219	224	229	234				
aca atg gat ggg gcc	aag gct aag gct att	ctg gat gcc tca cgg	tcc	831			
Thr Met Asp Gly Ala	Lys Ala Lys Ala Ile	Leu Asp Ala Ser Arg	Ser				
235	240	245	250				
tcc atg ggc atg gac	ata tct gcc att gac	ttg ata aac atc gag	agc	879			
Ser Met Gly Met Asp	Ile Ser Ala Ile Asp	Leu Ile Asn Ile Glu	Ser				
251	256	261	266				
ttc tcc agt cgt gtg	gtg tct tta tct gaa	tac cgc cag agc cta	cac	927			
Phe Ser Ser Arg Val	Val Ser Leu Ser Glu	Tyr Arg Gln Ser Leu	His				
267	272	277	282				
act tac ctg cgc tcc	aag atg agc caa gta	gcc ccc agc ctg tca	gcc	975			
Thr Tyr Leu Arg Ser	Lys Met Ser Gln Val	Ala Pro Ser Leu Ser	Ala				
283	288	293	298				
cta att ggg gaa gcg	gta ggt gca cgt ctc	atc gca cat gct ggc	agc	1023			
Leu Ile Gly Glu Ala	Val Gly Ala Arg Leu	Ile Ala His Ala Gly	Ser				
299	304	309	314				
ctc acc aac ctg gcc	aag tat cca gca tcc	aca gtg cag atc ctt	ggg	1071			
Leu Thr Asn Leu Ala	Lys Tyr Pro Ala Ser	Thr Val Gln Ile Leu	Gly				
315	320	325	330				
gct gaa aag gcc ctg	ttc aga gcc ctg aag	aca agg ggt aac act	cca	1119			
Ala Glu Lys Ala Leu	Phe Arg Ala Leu Lys	Thr Arg Gly Asn Thr	Pro				
331	336	341	346				
aaa tat gga ctc att	ttc cac tcc acc ttc	att ggc cga gca gct	gcc	1167			
Lys Tyr Gly Leu Ile	Phe His Ser Thr Phe	Ile Gly Arg Ala Ala	Ala				
347	352	357	362				
aag aac aaa ggc cgc	atc tcc cga tac ctg	gca aac aaa tgc agt	att	1215			
Lys Asn Lys Gly Arg	Ile Ser Arg Tyr Leu	Ala Asn Lys Cys Ser	Ile				
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gcc tca cga atc gat	tgc ttc tct gag gtg	ccc acg agt gta ttc	ggg	1263			
Ala Ser Arg Ile Asp	Cys Phe Ser Glu Val	Pro Thr Ser Val Phe	Gly				
379	384	389	394				

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Glu Lys Leu Arg Glu Gln Val Glu Glu Arg Leu Ser Phe Tyr Glu Thr	
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Gly Glu Ile Pro Arg Lys Asn Leu Asp Val Met Lys Glu Ala Met Val	
411 416 421 426	
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Gln Ala Glu Ala Glu Glu Ala Ala Glu Ile Thr Arg Lys Leu Glu	
427 432 437 442	
aaa cag gag aag aaa cgc tta aag aag gaa aag aaa cgg ctg gct gca	1455
Lys Gln Glu Lys Lys Arg Leu Lys Lys Glu Lys Lys Arg Leu Ala Ala	
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Leu Ala Leu Ala Ser Ser Glu Asn Ser Ser Ser Thr Pro Glu Glu Cys	
459 464 469 474	
gag gag atg agt gaa aaa ccc aaa aag aag aaa aag caa aag ccc cag	1551
Glu Glu Met Ser Glu Lys Pro Lys Lys Lys Lys Lys Gln Lys Pro Gln	
475 480 485 490	
gag gtt cct cag gag aat gga atg gaa gac cca tct atc tct ttc tcc	1599
Glu Val Pro Gln Glu Asn Gly Met Glu Asp Pro Ser Ile Ser Phe Ser	
491 496 501 506	
aaa ccc aag aaa aag aaa tct ttt tcc aag gag gag ttg atg agt agc	1647
Lys Pro Lys Lys Lys Lys Ser Phe Ser Lys Glu Glu Leu Met Ser Ser	
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gat ctt gaa gag acc gct ggc agc acc agt att ccc aag agg aag aag	1695
Asp Leu Glu Glu Thr Ala Gly Ser Thr Ser Ile Pro Lys Arg Lys Lys	
523 528 533 538	
tct aca ccc aag gag gaa aca gtt aat gac cct gag gag gca ggc cac	1743
Ser Thr Pro Lys Glu Glu Thr Val Asn Asp Pro Glu Glu Ala Gly His	
539 544 549 554	
aga agt ggc tcc aag aaa aag agg aaa ttc tcc aaa gag gag ccg gtc	1791
Arg Ser Gly Ser Lys Lys Lys Arg Lys Phe Ser Lys Glu Glu Pro Val	
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Ser Ser Gly Pro Glu Glu Ala Ala Gly Lys Ser Ser Ser Lys Lys Lys	
571 576 581 586	
aaa aag ttc cat aaa gca tcc cag gaa gat tag aatgcaaa tggacattct	1890
Lys Lys Phe His Lys Ala Ser Gln Glu Asp *	
587 592 597	
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aatgagagga cagcaagatt gtgggtatgg aatggggcaa agcaataagg gaaaattagt	240
gtggcagggt tcagtacagc agcctggggt cccatttccc cccatattca aatgctgaca	300
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Met Pro Gln Ala Ser	
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Glu His Arg Leu Gly Arg Thr Arg Glu Pro Pro Val Asn Ile Gln Pro	
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cga gtg gga tcc aag cta cca ttt gcc ccc agg gcc cgc agc aag gag	449
Arg Val Gly Ser Lys Leu Pro Phe Ala Pro Arg Ala Arg Ser Lys Glu	
22 27 32 37	
cgc aga aac cca gcc tct ggg cca aac ccc atg tta cga cct ctg cct	497
Arg Arg Asn Pro Ala Ser Gly Pro Asn Pro Met Leu Arg Pro Leu Pro	
38 43 48 53	
ccc cgg cca ggt ctg cct gat gaa cgg ctc aag aaa ctg gag ctg gga	545
Pro Arg Pro Gly Leu Pro Asp Glu Arg Leu Lys Lys Leu Glu Leu Gly	
54 59 64 69	
cgg gga cgg acc tca ggc cct cgt ccc aga ggc ccc ctt cga gca gat	593
Arg Gly Arg Thr Ser Gly Pro Arg Pro Arg Gly Pro Leu Arg Ala Asp	
70 75 80 85	
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His Gly Val Pro Leu Pro Gly Ser Pro Pro Pro Thr Val Ala Leu Pro	
86 91 96 101	
ctc cca tct cgg acc aac tta gcc cgt tcc aag tct gtg agc agt ggg	689
Leu Pro Ser Arg Thr Asn Leu Ala Arg Ser Lys Ser Val Ser Ser Gly	
102 107 112 117	
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Asp Leu Arg Pro Met Gly Ile Ala Leu Gly Gly His Arg Gly Thr Gly	

118	123	128	133	
gag ctt ggg gct gca	ctg agc cgc ttg gcc	ctc cgg cct gag cca	ccc	785
Glu Leu Gly Ala Ala	Leu Ser Arg Leu Ala	Leu Arg Pro Glu Pro	Pro	
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Thr Leu Arg Arg Ser	Thr Ser Leu Arg Arg	Leu Gly Gly Phe Pro	Gly	
150	155	160	165	
ccc cct acc ctg ttc	agc ata cgg aca gag	ccc cct gct tcc cat	ggc	881
Pro Pro Thr Leu Phe	Ser Ile Arg Thr Glu	Pro Pro Ala Ser His	Gly	
166	171	176	181	
tcc ttc cac atg ata	tcc gcc cgg tcc tct	gag cct ttc tac tct	gat	929
Ser Phe His Met Ile	Ser Ala Arg Ser Ser	Glu Pro Phe Tyr Ser	Asp	
182	187	192	197	
gac aag atg gct cat	cac aca ctc ctt ctg	ggc tct ggt cat gtt	ggc	977
Asp Lys Met Ala His	His Thr Leu Leu Leu	Gly Ser Gly His Val	Gly	
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Leu Arg Asn Leu Gly	Asn Thr Cys Phe Leu	Asn Ala Val Leu Gln	Cys	
214	219	224	229	
ctg agc agc act cga	cct ctt cgg gac ttc	tgt ctg aga agg gac	ttc	1073
Leu Ser Ser Thr Arg	Pro Leu Arg Asp Phe	Cys Leu Arg Arg Asp	Phe	
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cgg caa gag gtg cct	gga gga ggc cga gcc	caa gag ctc act gaa	gcc	1121
Arg Gln Glu Val Pro	Gly Gly Gly Arg Ala	Gln Glu Leu Thr Glu	Ala	
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Phe Ala Asp Val Ile	Gly Ala Leu Trp His	Pro Asp Ser Cys Glu	Ala	
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Val Asn Pro Thr Arg	Phe Arg Ala Val Phe	Gln Lys Tyr Val Pro	Ser	
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Phe Ser Gly Tyr Ser	Gln Gln Asp Ala Gln	Glu Phe Leu Lys Leu	Leu	
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Met Glu Arg Leu His	Leu Glu Ile Asn Arg	Arg Gly Arg Arg Ala	Pro	
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ccg ata ctt gcc aat	ggg cca gtt ccc tct	cca ccc cgc cga gga	ggg	1361
Pro Ile Leu Ala Asn	Gly Pro Val Pro Ser	Pro Pro Arg Arg Gly	Gly	
326	331	336	341	
gct ctg cta gaa gaa	cct gag tta agt gat	gat gac cga gcc aac	cta	1409
Ala Leu Leu Glu Glu	Pro Glu Leu Ser Asp	Asp Asp Arg Ala Asn	Leu	
342	347	352	357	

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Met Trp Lys Arg Tyr Leu Glu Arg Glu Asp Ser Lys Ile Val Asp Leu	
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Phe Val Gly Gln Leu Lys Ser Cys Leu Lys Cys Gln Ala Cys Gly Tyr	
374 379 384 389	
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Arg Ser Thr Thr Phe Glu Val Phe Cys Asp Leu Ser Leu Pro Ile Pro	
390 395 400 405	
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Lys Lys Gly Phe Ala Gly Gly Lys Val Ser Leu Arg Asp Cys Phe Asn	
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Leu Phe Thr Lys Glu Glu Glu Leu Glu Ser Glu Asn Ala Pro Val Cys	
422 427 432 437	
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Arg Gly Ser Ile Lys Lys Ser Ser Val Gly Val Asp Phe Pro Leu Gln	
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Arg Leu Ser Leu Gly Asp Phe Ala Ser Asp Lys Ala Gly Ser Pro Val	
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Tyr Gln Leu Tyr Ala Leu Cys Asn His Ser Gly Ser Val His Tyr Gly	
502 507 512 517	
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His Tyr Thr Ala Leu Cys Arg Cys Gln Thr Gly Trp His Val Tyr Asn	
518 523 528 533	
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Asp Ser Arg Val Ser Pro Val Ser Glu Asn Gln Val Ala Ser Ser Glu	
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Gly Tyr Val Leu Phe Tyr Gln Leu Met Gln Glu Pro Pro Arg Cys Leu	
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Met Pro Ser Val Ile Cys Glu His Thr Lys Gln Phe	
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Gln Thr Ile Ser Glu Glu Ser Asn Gln Gly Ser Leu Leu Thr Val Pro	
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Gly Asp Thr Ser Pro Ser Pro Lys Pro Glu Val Phe Ser Asn Val Pro	
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Glu Arg Asp Leu Ser Asn Val Ser Asn Ile His Ser Ser Phe Ala Thr	
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Ser Pro Thr Gly Ala Ser Asn Ser Lys Tyr Val Ser Ala Asp Arg Asn	
61 66 71 76	
ctc atc aag aat act gcc cca gtg aac act gta atg gac agt cca gtg	770
Leu Ile Lys Asn Thr Ala Pro Val Asn Thr Val Met Asp Ser Pro Val	
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His Leu Glu Pro Ser Ser Gln Val Gly Val Ile Gln Asn Lys Ser Trp	
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Glu Met Pro Val Asp Arg Leu Glu Thr Leu Ser Thr Arg Asp Phe Ile	
109 114 119 124	
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Cys Pro Asn Ser Asn Ile Pro Asp Gln Glu Ser Ser Leu Gln Ser Phe	
125 130 135 140	
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173 178 183 188	

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Thr Phe Val Leu Gly Asp Val Gln Lys Thr Asp Ala Phe Val Pro Val	
237 242 247 252	
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253 258 263 268	
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Lys Ser Ser Ser Gly His Glu Val Glu Asn Ser Thr Thr Asp Thr Gln	
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Val Ile Ser His Glu Lys Glu Asn Lys Leu Glu Ser Leu Val Leu Thr	
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cat ttg agt agg tgt gat tct gat tta tgt gaa atg aat gca ggg atg	1538
His Leu Ser Arg Cys Asp Ser Asp Leu Cys Glu Met Asn Ala Gly Met	
333 338 343 348	
cca aaa gga aac cta aat gaa caa gat cca aaa cat tgt cct gaa agt	1586
Pro Lys Gly Asn Leu Asn Glu Gln Asp Pro Lys His Cys Pro Glu Ser	
349 354 359 364	
gaa aag tgt ttg ctt tcc ata gaa gat gag gaa tct caa caa agc att	1634
Glu Lys Cys Leu Leu Ser Ile Glu Asp Glu Glu Ser Gln Gln Ser Ile	
365 370 375 380	
tta tca agt ctg gaa aac cat tca cag cag tca act caa cca gaa atg	1682
Leu Ser Ser Leu Glu Asn His Ser Gln Gln Ser Thr Gln Pro Glu Met	
381 386 391 396	
cat aaa tat ggt cag tta gtt aaa gta gaa tta gaa gaa aat gcc gaa	1730
His Lys Tyr Gly Gln Leu Val Lys Val Glu Leu Glu Glu Asn Ala Glu	
397 402 407 412	

gat gat aaa act gaa aac caa atc cct caa aga atg act aga aac aaa	1778
Asp Asp Lys Thr Glu Asn Gln Ile Pro Gln Arg Met Thr Arg Asn Lys	
413 418 423 428	
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Ala Asn Thr Met Ala Asn Gln Ser Lys Gln Ile Leu Ala Ser Cys Thr	
429 434 439 444	
cta tta tca gaa aaa gac agt gaa tcc tca tct cct aga gga aga ata	1874
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Arg Leu Thr Glu Asp Asp Asp Pro Gln Ile His His Pro Arg Lys Arg	
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Lys Val Ser Arg Val Pro Gln Pro Val Gln Val Ser Pro Ser Leu Leu	
477 482 487 492	
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Gln Ala Lys Glu Lys Thr Gln Gln Ser Leu Ala Ala Ile Val Asp Ser	
493 498 503 508	
cta aaa cta gat gag att cag cca tac agt tca gag aga gca aat cca	2066
Leu Lys Leu Asp Glu Ile Gln Pro Tyr Ser Ser Glu Arg Ala Asn Pro	
509 514 519 524	
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Tyr Phe Glu Tyr Leu His Ile Arg Lys Lys Ile Glu Glu Lys Arg Lys	
525 530 535 540	
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Leu Leu Cys Ser Val Ile Pro Gln Ala Pro Gln Tyr Tyr Asp Glu Tyr	
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Val Thr Phe Asn Gly Ser Tyr Leu Leu Asp Gly Asn Pro Leu Ser Lys	
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Ile Cys Ile Pro Thr Ile Thr Pro Pro Pro Ser Leu Ser Asp Pro Leu	
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Lys Glu Leu Phe Arg Gln Gln Glu Val Val Arg Met Lys Leu Arg Leu	
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Gln His Ser Ile Glu Arg Glu Lys Leu Ile Val Ser Asn Glu Gln Glu	
605 610 615 620	
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ctg cca ttt agt gct tgt act gtt ttg ctg gat gcc gaa gta tac aat	2450

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Arg	Phe	Asn	Ala	Arg	Gln	Phe	Met	Ser	Trp	Leu	Gln	Asp	Val	Asp	Asp	
669					674					679					684	
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Lys	Phe	Asp	Lys	Leu	Lys	Thr	Cys	Leu	Leu	Met	Arg	Gln	Gln	His	Glu	
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gct	gcg	gct	tta	aat	gct	gtc	cag	agg	tta	gaa	tgg	cag	ctc	aaa	ctc	2642
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701					706					711					716	
cag	gaa	ctt	gat	cct	gcc	acc	tat	aaa	tct	atc	agc	att	tac	gaa	atc	2690
Gln	Glu	Leu	Asp	Pro	Ala	Thr	Tyr	Lys	Ser	Ile	Ser	Ile	Tyr	Glu	Ile	
717					722					727					732	
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agaagagcct ggagatgttg gtgctggaga cccaactct gatcaggggac tccctgtgct 660

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Met Thr Gln Gly Thr Glu Asp Leu Lys Gly Pro Gly Gln Arg Cys
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Glu Asn Glu Pro Leu Leu Asp Pro Val Gly Pro Glu Pro Leu Gly Pro
16 21 26 31

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Glu Ser Gln Ser Gly Lys Gly Asp Met Val Glu Met Ala Thr Arg Phe
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ggg tcc acc ctg cag cta gac ctg gaa aag ggg aag gag agt ctg ttg 850

Gly Ser Thr Leu Gln Leu Asp Leu Glu Lys Gly Lys Glu Ser Leu Leu
48 53 58 63

gag aag agg ctg gtg gca gag gag gaa gag gac gaa gag gag gtg gaa 898

Glu	Lys	Arg	Leu	Val	Ala	Glu	Glu	Glu	Glu	Asp	Glu	Glu	Glu	Val	Glu				
64					69					74					79				
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Glu	Asp	Gly	Pro	Ser	Ser	Cys	Ser	Glu	Asp	Asp	Tyr	Ser	Glu	Leu	Leu				
80					85					90					95				
cag	gag	atc	aca	gac	aac	ctg	acg	aag	aag	gag	att	cag	ata	gag	aag			994	
Gln	Glu	Ile	Thr	Asp	Asn	Leu	Thr	Lys	Lys	Glu	Ile	Gln	Ile	Glu	Lys				
96					101					106					111				
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Ile	His	Leu	Asp	Thr	Ser	Ser	Phe	Val	Glu	Glu	Leu	Pro	Gly	Glu	Lys				
112					117					122					127				
gac	ctt	gcc	cac	gtg	gta	gag	atc	tat	gac	ttt	gaa	cca	gcg	ctc	aag			1090	
Asp	Leu	Ala	His	Val	Val	Glu	Ile	Tyr	Asp	Phe	Glu	Pro	Ala	Leu	Lys				
128					133					138					143				
acg	gag	gac	ctg	ctg	gca	acg	ttt	tct	gag	ttc	caa	gag	aag	ggg	ttc			1138	
Thr	Glu	Asp	Leu	Leu	Ala	Thr	Phe	Ser	Glu	Phe	Gln	Glu	Lys	Gly	Phe				
144					149					154					159				
agg	att	cag	tgg	gtg	gat	gat	act	cac	gca	ctc	ggc	atc	ttt	ccc	tgc			1186	
Arg	Ile	Gln	Trp	Val	Asp	Asp	Thr	His	Ala	Leu	Gly	Ile	Phe	Pro	Cys				
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Ile	Arg	Pro	Leu	Thr	Gln	Gly	Thr	Lys	Gln	Ser	Lys	Leu	Lys	Ala	Leu				
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Gln	Arg	Pro	Lys	Leu	Leu	Arg	Leu	Val	Lys	Glu	Arg	Pro	Gln	Thr	Asn				
208					213					218					223				
gcg	act	gtg	gcc	cgg	cgg	ctg	gtg	gcc	cgg	gcc	ctg	gga	ctc	caa	cac			1378	
Ala	Thr	Val	Ala	Arg	Arg	Leu	Val	Ala	Arg	Ala	Leu	Gly	Leu	Gln	His				
224					229					234					239				
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 ttcactactc tgtgtcctgt gctcctacag gcccagcctc tgtggccctg tgacctgcag 180

 gtattgggag atccacagct aagacaccag gacccttgga agcctagaa atg gga 235
 Met Gly
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 cca ttg caa ttt aga gat gtg gcc ata gaa ttc tct ctg gag gag tgg 283
 Pro Leu Gln Phe Arg Asp Val Ala Ile Glu Phe Ser Leu Glu Glu Trp
 3 8 13 18

 cat tgc ctg gac act gca cag cgg aat cta tat agg aat gtg atg tta 331
 His Cys Leu Asp Thr Ala Gln Arg Asn Leu Tyr Arg Asn Val Met Leu
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 35 40 45 50

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 Asp Leu Ile Ala His Leu Glu Gln Gly Lys Lys Pro Leu Thr Met Lys
 51 56 61 66

 aga cat gag atg gta gcc aac ccc tca ggg cca gtt ata tgt tct cat 475
 Arg His Glu Met Val Ala Asn Pro Ser Gly Pro Val Ile Cys Ser His
 67 72 77 82

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 Phe Ala Gln Asp Leu Trp Pro Glu Gln Asn Ile Lys Asp Ser Phe Gln
 83 88 93 98

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 Lys Val Ile Leu Arg Arg Tyr Glu Lys Arg Gly His Gly Asn Leu Gln
 99 104 109 114

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 Leu Ile Lys Arg Cys Glu Ser Val Asp Glu Cys Lys Val His Thr Gly
 115 120 125 130

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 Gly Tyr Asn Gly Leu Asn Gln Cys Ser Thr Thr Thr Gln Ser Lys Val
 131 136 141 146

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Asn	Arg	His	Asn	Ile	Arg	His	Thr	Glu	Lys	Lys	Pro	Phe	Lys	Cys	Ile	
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Glu	Cys	Gly	Lys	Ala	Phe	Asn	Gln	Phe	Ser	Thr	Leu	Ile	Thr	His	Lys	
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552 557 562 567	
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568 573 578 583	
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Lys Ser Tyr Ile Arg Ala Tyr Asp Ser His Ser Leu Lys Gln Ile Phe	
584 589 594 599	
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Lys Val Pro Pro Phe Val Asp Leu Asn Val Asn Ser Asn Glu Gly Lys	
616 621 626 631	
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Gln Lys Lys Arg Gly Gly Gly Gly Gly Phe Gly Tyr Gln Lys Thr Lys	
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aaa gtt gag aaa tcc aaa atc ttt aaa cac att agc aag aaa tca tct	2199
Lys Val Glu Lys Ser Lys Ile Phe Lys His Ile Ser Lys Lys Ser Ser	
648 653 658 663	
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Asp Ser Arg Gln Phe Ser His *	
664 669	
ttgtcctaaa atgaattttt tttccccttg atttaacagg attttttag actttagaat	2313
ttggacttac ctaacaagag tataaattga cttgggttgc aagcactgag cactgttact	2373
tctatcacgt ctctctttta tttctgggat ataaaacagg ctttaagttt cttgggttgc	2433
caagggcaga gcaaggaata tctggtggtt cttgtgatga taatatatta attttaaata	2493
tcctccctc atacaagtgt atgttaccat tttaatatata ttctttttgt atctttcctt	2553
cttggtttgt gaagattttt gtggcatgga ttgctgtgct cactgctgta aaaggtgacc	2613
tagtgtactg ggcagctggt ggtggtgcag aaaagagtct caggttattt tagatttggt	2673
taattcaagg tggtttggat ttggtaagcc tttgcactct gtagagtact tagaagacaa	2733
gggcaactta cttggagtta gagccaagct gtcagacggt gcccagcaca cattaatggt	2793
agcttctttc tgagaaaaaa atacctcttc caggccctga aacaaaaaat acatttgctg	2853
tgaagattga aaatgaacaa agttagaaaa aaaaacagca aaatcagtga tttagtcatt	2913

gagtttttcg ttgtaggagc acttgatttc tagtgtgttt tgtacagtat ataactacaa 2973
 gatagtacat tttgtagcag ttcaaagcca aagttgctag catcattttg ctgttgtgcc 3033
 agttaatcat aggatcccat taaataagtg tgctaacatc gaatatagag aaaactggta 3093
 aagaacattc cagtaggaaa agaaaagaac aatcttccat ttctgggctt ggccaccatc 3153
 accctggtcg gacctgtcct ggacttccaa ccttgactgc tgagctcctg gcttagcttc 3213
 ttgggttctt aattcctggg gtttaataat tctctccacg atcatgtttt tctgattttt 3273
 tttttcagaa ataatgtttt ttaaaagaca aaaacaaagg gaagaatatt taattactga 3333
 gcagaagtaa atactgttgg tattttgtac ataatctaata ttttatatgc atgttcatgc 3393
 tttttaattt ttttatcaaa aattaagtca tctacctact acttgtaacc agcttgtttc 3453
 ataacatggt attttctgtgt gtcattaaat aattacttca aaaaaaaaaa a 3504

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (157)..(489)

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 tgtaggtgca tttgtataaa aaatataact cccattgcc tctgggataa agtcttatct 120
 cagtttacat atattcttga taacctctcc aacttt atg tct cac cac ccc cac 174
 Met Ser His His Pro His
 1

tca ctt cgt aat tgc tgc ctt atc aga atg gac ctg tta tac tgg cag 222
 Ser Leu Arg Asn Ser Cys Leu Ile Arg Met Asp Leu Leu Tyr Trp Gln
 7 12 17 22

ttc acc ata tat acc att aca ttt tgt ttc tcc cat ctc tca ggt aga 270
 Phe Thr Ile Tyr Thr Ile Thr Phe Cys Phe Ser His Leu Ser Gly Arg
 23 28 33 38

ctt aca ctt tgc gcc cag cac atc agt cat cgc cct tgc ttg ctt tcc 318
 Leu Thr Leu Ser Ala Gln His Ile Ser His Arg Pro Cys Leu Leu Ser
 39 44 49 54

tat tca ctc ctg ttc tgg aag gtg cac cac ctt ttc ttg gaa ggc ttc 366
 Tyr Ser Leu Leu Phe Trp Lys Val His His Leu Phe Leu Glu Gly Phe
 55 60 65 70

cct tgc tct ccc agg cta gat gag atg tcc ttc cat cag ttc cca cag	414
Pro Cys Ser Pro Arg Leu Asp Glu Met Ser Phe His Gln Phe Pro Gln	
71 76 81 86	
cac cct gtg cat gta tct gtt gtg cac tta cca ata gta tac aag gga	462
His Pro Val His Val Ser Val Val His Leu Pro Ile Val Tyr Lys Gly	
87 92 97 102	
tct atg acc caa gtc tct ccc cac tag cttgt aagctcctca cagacaggaa	514
Ser Met Thr Gln Val Ser Pro His *	
103 108	
ccatgttttg tctttgtact ccagtgccta gtatataaga gatactcaat aaataaatat	574
ttgtcaaadc aactaattga ttccttgtga cctaattcta gagaatggga agaaggcctg	634
ttattttgtt gtcctttatg gttctttagg aaagctctcc aagcttggca tttgtcaggg	694
tgggaggaaa actggtgaag tattaagact ggacacatgg ctgctaattc atcagcttat	754
cattgaaaaa gtccatagcc aaaacctgac tgtgcaetta ctataggacc ctgacctgcc	814
tgggtctccc tgtctctcca gccagtatat ttaaaggtaa tgagataatg atgagtgttt	874
tgaaaaatgt ttagtggtca aatagaaacc attcgtgtcc cttcactctc tgaacatagt	934
ctgcaaatct ctccctctct ggtatgtttc tgttttgtgg attagactgc taaataagcg	994
aagagttaat tttgaagttc aggtcaacaa attcctgttt ggagacgggc tgttcctgaa	1054
taccaggttg ttatctgtct attacagccc cttcacttct gggctcctgg ccctttgcga	1114
agtacttcag aaagcctaga gagaagagag ggccctcaaa tcccattcca gccctaaat	1174
gaaagtggca tcacaaggag aaaagtggag gtagaaatgt accatggggg acgttgcccc	1234
attgcctttc ttccttgac tactgggctt cctctatcag ctttaacgct ggaagtagct	1294
gagtctccag tcactggtgg ccttcccca gtagctcag cagcatgtgc taataggtgc	1354
caatactgtg ctggctccag tgggattcct ctctgcaaa gctgtggctt agcttgactg	1414
tttccctatt cctctcctta gaactttcat agccagtcaa gcatagaatt gcatccattc	1474
ttctgaaata ggatctgtgc ctaatttttc attggcttgg ccaagattct gttacctgta	1534
attatgtcat atgggctgac tgggtgtagg ttggtaggcc tcaactgctc ccagaggcta	1594
gtgttcctat cccaggatgg ctgttgggat taggagtgga atgaggaata gtttaggacc	1654
acaagagatt tggcctcctt ggaacatgta ggaaggcctc aaggatgtaa ttctagccca	1714
gggaagaaaa tccttttcag cagacgcttc ccttcccttc ccctagggaa tgtgtcccta	1774
ctatagtaaa ctcttcctta agagagtttt atgttttctc tgtcagacca atttgttttt	1834
cttaatgttg ttcctatgg	1853

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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (37)..(963)

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 Met Ala Gly Lys Lys Asn
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 gtt ctg tcg tct ctc gca gtt tac gcg gaa gat tca gag ccc gag tct 102
 Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser
 7 12 17 22
 gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa 150
 Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys
 23 28 33 38
 ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta 198
 Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu
 39 44 49 54
 ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga 246
 Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg
 55 60 65 70
 cag tcg gaa gat gac gat tca gag act gaa aaa cct gag gct gat gac 294
 Gln Ser Glu Asp Asp Asp Ser Glu Thr Glu Lys Pro Glu Ala Asp Asp
 71 76 81 86
 cca aag gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg 342
 Pro Lys Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val
 87 92 97 102
 gcc tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag 390
 Ala Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys
 103 108 113 118
 atc ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag 438
 Ile Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys
 119 124 129 134
 atc cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac 486
 Ile Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn
 135 140 145 150
 tac att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag 534
 Tyr Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu
 151 156 161 166

aag ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca	582
Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro	
167 172 177 182	
aag gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag	630
Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu	
183 188 193 198	
gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc	678
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala	
199 204 209 214	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc	726
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly	
215 220 225 230	
acc acg acc aac gcc acg tcc acc acc act acc act gcc agc aca gct	774
Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala	
231 236 241 246	
gtt gca gat gct cag aag aga aag agc aag tgg gat tgg gct atc cca	822
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro	
247 252 257 262	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg	870
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu	
263 268 273 278	
cca gct gtt gtc acg gtc acc acc agc gcc agc ggc tcc aag acc acc	918
Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr	
279 284 289 294	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct	966
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *	
295 300 305	
gagggggccac cctaggactt gaaaggaccg tgcagccag tgaccactgc ccagtgggag	1026
gcgccacttt gtatatattca ggactgggac ctactcccca gatgccacct gagaggagct	1086
tctgtttggc attccagatg gaaggacagg cagcacggga gccaggcgct gtggacaggg	1146
tctgtccag caccacctgg ggtctgccgc ctattaaaag tgcogtattc ttacctcttg	1206
gcattctcaga tgcactggcc tctcctgcat tctgtttgca ggcaaagtct tcagctcaca	1266
tgtcccccaa gactcaatag tcttggttg gactattgcc tcagggttga caacaggggtg	1326
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at	1388

<210> 282

<211> 1562
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (37) .. (1137)

<400> 282

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gtt ctg tcg tct ctc gca gtt tac gcg gaa gat tca gag ccc gag tct		102
Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser		
7 12 17 22		
gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa		150
Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys		
23 28 33 38		
ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta		198
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu		
39 44 49 54		
ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga		246
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg		
55 60 65 70		
cag tcg aga cgg tgt ttc act atg ttt ccc agt ctg gtt tca aac ttc		294
Gln Ser Arg Arg Cys Phe Thr Met Phe Pro Ser Leu Val Ser Asn Phe		
71 76 81 86		
tgg cct caa gca att ccc ctg cct cac cct ccc aaa gtg ctg gga tta		342
Trp Pro Gln Ala Ile Pro Leu Pro His Pro Pro Lys Val Leu Gly Leu		
87 92 97 102		
cag gaa gat gac gat tca gag act gaa aaa cct gag gct gat gac cca		390
Gln Glu Asp Asp Asp Ser Glu Thr Glu Lys Pro Glu Ala Asp Asp Pro		
103 108 113 118		
aag gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg gcc		438
Lys Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val Ala		
119 124 129 134		
tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag atc		486
Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys Ile		
135 140 145 150		
ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag atc		534
Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys Ile		
151 156 161 166		
cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac tac		582
Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn Tyr		
167 172 177 182		

att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag aag	630
Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu Lys	
183 188 193 198	
ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca aag	678
Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro Lys	
199 204 209 214	
gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag gca	726
Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu Ala	
215 220 225 230	
tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc aaa	774
Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala Lys	
231 236 241 246	
aag gag cga aca aaa gct tgt tgc agg gac gtg tct gca gcg cct ggg	822
Lys Glu Arg Thr Lys Ala Cys Cys Arg Asp Val Ser Ala Ala Pro Gly	
247 252 257 262	
gaa ccg agc tgt cct tcc cct gtg cgg gcg ggc acc gcc tcc tcc tgg	870
Glu Pro Ser Cys Pro Ser Pro Val Arg Ala Gly Thr Ala Ser Ser Trp	
263 268 273 278	
att gag ttt gtg acg ggc acc aaa aaa ggc acc acg acc aac gcc acg	918
Ile Glu Phe Val Thr Gly Thr Lys Lys Gly Thr Thr Thr Asn Ala Thr	
279 284 289 294	
tcc acc acc act acc act gcc agc aca gct gtt gca gat gct cag aag	966
Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala Val Ala Asp Ala Gln Lys	
295 300 305 310	
aga aag agc aag tgg gat tcg gct atc cca gtg aca acg ata gcc cag	1014
Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro Val Thr Thr Ile Ala Gln	
311 316 321 326	
ccc acc atc ctc acc acc aca gcc acc ctg cca gct gtt gtc acg gtc	1062
Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu Pro Ala Val Val Thr Val	
327 332 337 342	
acc acc agc gcc agc ggc tcc aag acc acc gtc atc tct gct gtg ggc	1110
Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr Val Ile Ser Ala Val Gly	
343 348 353 358	
acc att gtg aag aag gcc aag cag tga cctga gggggccaccc taggacttga	1162
Thr Ile Val Lys Lys Ala Lys Gln *	
359 364	
aaggaccgtg cagcccagtg accactgccc agtgggaggc gccactttgt atatttcagg	1222
actgggacct actccccaga tgccacctga gaggagcttc tgtttggcat tccagatgga	1282
aggacaggca gcacgggagc caggcgctgt ggacagggtc tgtccacgca ccacctgggg	1342
tctgccgcct attaaaagtg ccgtattctt acctcttggc atctcagatg cactggcctc	1402
tcctgcattc tgtttgcagg caaatgcttc agctcacatg tcccccaaga ctcaatagtc	1462

ttggttggga ctattgcctc agggttgaca acaggggtgat ggaggcctgg gacgctgttc 1522

agaggggtga cccaagaagt caccgttggt atccgtgtat 1562

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<211> 1152
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (76)..(1152)

<400> 283
tcggccggaa ttcccgggtc gacgatttcg tccagggcgg acaggctggg cgcacccgtg 60

ctcgcgcacc ccaag atg gct gag agg cag gaa gag cag aga ggg agc ccg 111
Met Ala Glu Arg Gln Glu Glu Gln Arg Gly Ser Pro
1 5 10

ccc ttg agg gcg gaa ggc aag gcc gac gcg gag gtt aag ctc att ctg 159
Pro Leu Arg Ala Glu Gly Lys Ala Asp Ala Glu Val Lys Leu Ile Leu
13 18 23 28

tac cat tgg acg cat tcc ttc agc tct caa aag gtg cgc ttg gta att 207
Tyr His Trp Thr His Ser Phe Ser Ser Gln Lys Val Arg Leu Val Ile
29 34 39 44

gct gaa aag gca ttg aag tgc gag gaa cat gat gta agt ctg ccc ttg 255
Ala Glu Lys Ala Leu Lys Cys Glu Glu His Asp Val Ser Leu Pro Leu
45 50 55 60

agt gag cac aat gag cct tgg ttt atg cgt ttg aac tca act gga gaa 303
Ser Glu His Asn Glu Pro Trp Phe Met Arg Leu Asn Ser Thr Gly Glu
61 66 71 76

gtg cct gtc ctt atc cac ggg gaa aac ata att tgt gag gcc act cag 351
Val Pro Val Leu Ile His Gly Glu Asn Ile Ile Cys Glu Ala Thr Gln
77 82 87 92

atc att gat tat ctt gaa cag act ttc ctg gat gaa aga aca ccc agg 399
Ile Ile Asp Tyr Leu Glu Gln Thr Phe Leu Asp Glu Arg Thr Pro Arg
93 98 103 108

tta atg cct gat aaa gaa agc atg tat tac cca cgg gta caa cat tac 447
Leu Met Pro Asp Lys Glu Ser Met Tyr Tyr Pro Arg Val Gln His Tyr
109 114 119 124

cga gag ctg ctt gac tcc ttg cca atg gat gcc tat aca cat ggc tgc 495
Arg Glu Leu Leu Asp Ser Leu Pro Met Asp Ala Tyr Thr His Gly Cys
125 130 135 140

att tta cat cct gag tta act gtg gac tcc atg atc ccg gct tat gca 543

Ile	Leu	His	Pro	Glu	Leu	Thr	Val	Asp	Ser	Met	Ile	Pro	Ala	Tyr	Ala		
141					146					151					156		
act	aca	agg	att	cgt	agc	caa	att	gga	aac	aca	gag	tct	gag	ctg	aag	591	
Thr	Thr	Arg	Ile	Arg	Ser	Gln	Ile	Gly	Asn	Thr	Glu	Ser	Glu	Leu	Lys		
157					162					167					172		
aaa	ctt	gct	gaa	gaa	aac	cca	gat	tta	caa	gaa	gca	tac	att	gca	aaa	639	
Lys	Leu	Ala	Glu	Glu	Asn	Pro	Asp	Leu	Gln	Glu	Ala	Tyr	Ile	Ala	Lys		
173					178					183					188		
cag	aaa	cga	ctt	aaa	tca	aag	ctg	ctt	gat	cat	gac	aat	gtc	aag	tat	687	
Gln	Lys	Arg	Leu	Lys	Ser	Lys	Leu	Leu	Asp	His	Asp	Asn	Val	Lys	Tyr		
189					194					199					204		
ttg	aag	aaa	att	ctt	gat	gag	ttg	gag	aaa	gtc	ttg	gat	cag	gtt	gaa	735	
Leu	Lys	Lys	Ile	Leu	Asp	Glu	Leu	Glu	Lys	Val	Leu	Asp	Gln	Val	Glu		
205					210					215					220		
act	gaa	ttg	caa	aga	aga	aat	gaa	gaa	acc	cca	gaa	gag	ggc	cag	caa	783	
Thr	Glu	Leu	Gln	Arg	Arg	Asn	Glu	Glu	Thr	Pro	Glu	Glu	Gly	Gln	Gln		
221					226					231					236		
cct	tgg	ctc	tgc	ggc	gaa	tcc	ttc	acc	ctg	gca	gac	gtc	tca	ctc	gct	831	
Pro	Trp	Leu	Cys	Gly	Glu	Ser	Phe	Thr	Leu	Ala	Asp	Val	Ser	Leu	Ala		
237					242					247					252		
gtc	aca	ttg	cat	cga	ctg	aag	ttc	ctg	ggg	ttt	gca	agg	aga	aac	ttg	879	
Val	Thr	Leu	His	Arg	Leu	Lys	Phe	Leu	Gly	Phe	Ala	Arg	Arg	Asn	Trp		
253					258					263					268		
gga	aac	gga	aag	cga	cca	aac	ttg	gaa	acc	tat	tac	gag	cgt	gtc	ttg	927	
Gly	Asn	Gly	Lys	Arg	Pro	Asn	Leu	Glu	Thr	Tyr	Tyr	Glu	Arg	Val	Leu		
269					274					279					284		
aag	aga	aaa	aca	ttt	aac	aag	gtt	tta	gga	cat	gtc	aac	aat	ata	tta	975	
Lys	Arg	Lys	Thr	Phe	Asn	Lys	Val	Leu	Gly	His	Val	Asn	Asn	Ile	Leu		
285					290					295					300		
atc	tct	gca	gtg	ctg	cca	aca	gca	ttc	cgg	gtg	gcc	aag	aaa	agg	gcc	1023	
Ile	Ser	Ala	Val	Leu	Pro	Thr	Ala	Phe	Arg	Val	Ala	Lys	Lys	Arg	Ala		
301					306					311					316		
cca	aaa	gtt	ctt	ggc	acg	acc	ctt	gtg	gtt	ggc	ttg	ctt	gca	gga	gtg	1071	
Pro	Lys	Val	Leu	Gly	Thr	Thr	Leu	Val	Val	Gly	Leu	Leu	Ala	Gly	Val		
317					322					327					332		
gga	tat	ttt	gct	ttt	atg	ctt	ttc	aga	aag	aga	ctt	ggc	agc	atg	ata	1119	
Gly	Tyr	Phe	Ala	Phe	Met	Leu	Phe	Arg	Lys	Arg	Leu	Gly	Ser	Met	Ile		
333					338					343					348		
tta	gca	ctt	aga	ccc	aga	cca	aat	tat	ttc	tag						1152	
Leu	Ala	Leu	Arg	Pro	Arg	Pro	Asn	Tyr	Phe	*							
349					354					359							

<210> 284
 <211> 3567
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (50)..(1774)

<400> 284
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 Met Cys
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ccc cga gcc gcg cgg gcg ccc gcg acg cta ctc ctc gcc ctg ggc gcg 103
 Pro Arg Ala Ala Arg Ala Pro Ala Thr Leu Leu Leu Ala Leu Gly Ala
 3 8 13 18

gtg ctg tgg cct gcg gct ggc gcc tgg gag ctt acg att ttg cac acc 151
 Val Leu Trp Pro Ala Ala Gly Ala Trp Glu Leu Thr Ile Leu His Thr
 19 24 29 34

aac gac gtg cac agc cgg ctg gag cag acc agc gag gac tcc agc aag 199
 Asn Asp Val His Ser Arg Leu Glu Gln Thr Ser Glu Asp Ser Ser Lys
 35 40 45 50

tgc gtc aac gcc agc cgc tgc atg ggt ggc gtg gct cgg ctc ttc acc 247
 Cys Val Asn Ala Ser Arg Cys Met Gly Gly Val Ala Arg Leu Phe Thr
 51 56 61 66

aag gtt cag cag atc cgc cgc gcc gaa ccc aac gtg ctg ctg ctg gac 295
 Lys Val Gln Gln Ile Arg Arg Ala Glu Pro Asn Val Leu Leu Leu Asp
 67 72 77 82

gcc ggc gac cag tac cag ggc act atc tgg ttc acc gtg tac aag ggc 343
 Ala Gly Asp Gln Tyr Gln Gly Thr Ile Trp Phe Thr Val Tyr Lys Gly
 83 88 93 98

gcc gag gtg gcg cac ttc atg aac gcc ctg cgc tac gat gcc atg gca 391
 Ala Glu Val Ala His Phe Met Asn Ala Leu Arg Tyr Asp Ala Met Ala
 99 104 109 114

ctg gga aat cat gaa ttt gat aat ggt gtg gaa gga ctg atc gag cca 439
 Leu Gly Asn His Glu Phe Asp Asn Gly Val Glu Gly Leu Ile Glu Pro
 115 120 125 130

ctc ctc aaa gag gcc aaa ttt cca att ctg agt gca aac att aaa gca 487
 Leu Leu Lys Glu Ala Lys Phe Pro Ile Leu Ser Ala Asn Ile Lys Ala
 131 136 141 146

aag ggg cca cta gca tct caa ata tca gga ctt tat ttg cca tat aaa 535
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Lys 227	Leu	Ile	Ala	Gln	Lys	Val	Arg	Gly	Val	Asp	Val	Val	Val	Gly	Gly	
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His 243	Ser	Asn	Thr	Phe	Leu	Tyr	Thr	Gly	Asn	Pro	Pro	Ser	Lys	Glu	Val	
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Pro 259	Ala	Gly	Lys	Tyr	Pro	Phe	Ile	Val	Thr	Ser	Asp	Asp	Gly	Arg	Lys	
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Val 275	Pro	Val	Val	Gln	Ala	Tyr	Ala	Phe	Gly	Lys	Tyr	Leu	Gly	Tyr	Leu	
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Lys 291	Ile	Glu	Phe	Asp	Glu	Arg	Gly	Asn	Val	Ile	Ser	Ser	His	Gly	Asn	
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Phe 355	Arg	Glu	Cys	Asn	Met	Gly	Asn	Leu	Ile	Cys	Asp	Ala	Met	Ile	Asn	
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Asn 371	Asn	Leu	Arg	His	Thr	Asp	Glu	Met	Phe	Trp	Asn	His	Val	Ser	Met	
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Cys	Ile	Leu	Asn	Gly	Gly	Gly	Ile	Arg	Ser	Pro	Ile	Asp	Glu	Arg	Asn	

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ggc aca ttt gac cta gtc cag tta aaa ggt tcc acc ctg aag aag gcc				1351
Gly Thr Phe Asp Leu Val Gln Leu Lys Gly Ser Thr Leu Lys Lys Ala				
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Phe Glu His Ser Val His Arg Tyr Gly Gln Ser Thr Gly Glu Phe Leu				
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Gln Val Gly Gly Ile His Val Val Tyr Asp Leu Ser Arg Lys Pro Gly				
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Ser Tyr Asp Pro Leu Lys Met Asp Glu Val Tyr Lys Val Ile Leu Pro				
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Tyr Ile Ser Lys Met Lys Val Ile Tyr Pro Ala Val Glu Gly Arg Ile				
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cgcacgtctg tgtcactgcc caccttcagc caccttcaca cttoctagtg ctgcctgagt 180

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Met Thr Ser Val Ala Ala Arg Ser His Met Trp Pro Cys
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Arg Leu Tyr Ala Phe Val Met Ser Val Ile Ser Asp Asp Arg Phe Glu
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Asp Leu Glu Glu Ala Asn Pro Phe Ser Phe Arg Glu Phe Leu Lys Thr
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62 67 72 77

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Lys Glu Ala Ser Arg His Ser Leu Gly Leu Asp His Asn Ser Pro Pro
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Ser Gln Thr Gly Gly Tyr Gly Leu Glu Tyr Gln Gln Pro Phe Phe Glu
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Thr Gly Trp Ser Gly Ala Tyr Leu Pro Ser Ala Ile Glu Gln Thr His
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Gln Val Glu Gln Asn Leu Glu Leu Met Thr Lys Arg Ala Val Lys Ala				
270	275	280	285	
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Ile Asp Arg Ile Ser Glu Val Lys Asp Glu Glu Glu Asp Ser *				
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Cys	Leu	Arg	Asn	Ala	Cys	Ile	Glu	Cys	Ser	Val	Asn	Gln	Asn	Ser	Ile	
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Phe Glu Val Glu Lys Lys Gly Glu Lys Leu Ile Leu Lys Ser Thr Arg	
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Ser Asp Leu Glu Thr Thr Thr Ser His Met Pro Arg Ser Gly Ala Pro
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Lys Glu Arg Pro Ala Glu Pro Leu Thr Pro Pro Pro Ser Tyr Gly His
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Asp His Leu Tyr Ser Thr Val Cys Lys Pro Arg Ser Pro Lys Pro Ala
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89 94 99 104

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Phe Asn Ile Thr Asp Glu Ile Met Ser Gln Phe Pro Ser Ser Lys Val
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137 142 147 152

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Cys Glu Asn His Phe His Ala Arg Arg Gly Ser Leu Cys Ala Thr Cys	
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Gly Leu Pro Val Thr Gly Arg Cys Val Ser Ala Leu Gly Arg Arg Phe	
409 414 419 424	

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His Pro Asp His Phe Thr Cys Thr Phe Cys Leu Arg Pro Leu Thr Lys	
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Gly Ser Phe Gln Glu Arg Ala Gly Lys Pro Tyr Cys Gln Pro Cys Phe	
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Ser	Asp	Ile	Tyr	Thr	Val	His	His	Ile	Val	Trp	Asn	Val	Glu	Glu	Gly	
703					708					713					718	
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agc	cgg	atg	gtg	agg	cgg	agc	aag	aaa	tcc	aag	aag	aaa	gaa	agt	ctc	2580
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Lys	Leu	Gly	Gly	Gln	Arg	Tyr	Arg	Ser	Gly	Arg	Arg	Lys	Ser	Ala	Gly	
895					900					905					910	
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Ser Tyr Gly Ser Asp Lys Lys His Leu Cys Ser Arg Lys His Ser Leu				
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Val Glu Arg Ser Ser Thr Phe Glu Asn Lys Ala Ser Met Gln Glu Ala				
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Pro Pro Leu Gly Ser Leu Leu Lys Asp Ala Leu His Lys Gln Ala Ser				
1135	1140	1145	1150	

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Val Arg Ala Ser Glu Gly Ala Met Ser Asp Gly Pro Val Pro Ala Glu	
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cac cgc cag ggt ggc ggg gac ttc aga cgg gcc ccc gct cct ggc acc	3732
His Arg Gln Gly Gly Gly Asp Phe Arg Arg Ala Pro Ala Pro Gly Thr	
1167 1172 1177 1182	
ctc cag gat ggt ctc tgc cac tcc ctc gac agg ggc atc tct ggg aag	3780
Leu Gln Asp Gly Leu Cys His Ser Leu Asp Arg Gly Ile Ser Gly Lys	
1183 1188 1193 1198	
ggg gaa ggc acg gag aag tcc tcc cag gcc aag gag ctt ctc cga tgt	3828
Gly Glu Gly Thr Glu Lys Ser Ser Gln Ala Lys Glu Leu Leu Arg Cys	
1199 1204 1209 1214	
gaa aag tta gac agc aag ctg gcc aac atc gat tac ctc cga aag aaa	3876
Glu Lys Leu Asp Ser Lys Leu Ala Asn Ile Asp Tyr Leu Arg Lys Lys	
1215 1220 1225 1230	
atg tca ctt gag gac aaa gag gac aac ctc tgc cct gtg ctg aag ccc	3924
Met Ser Leu Glu Asp Lys Glu Asp Asn Leu Cys Pro Val Leu Lys Pro	
1231 1236 1241 1246	
aag atg aca gct ggc tcc cac gaa tgc ctg cca ggg aac cca gtc cga	3972
Lys Met Thr Ala Gly Ser His Glu Cys Leu Pro Gly Asn Pro Val Arg	
1247 1252 1257 1262	
ccc acg ggt ggg cag cag gag ccc ccg ccg gct tct gag agc cga gct	4020
Pro Thr Gly Gly Gln Gln Glu Pro Pro Pro Ala Ser Glu Ser Arg Ala	
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Phe Val Ser Ser Thr His Ala Ala Gln Met Ser Ala Val Ser Phe Val	
1279 1284 1289 1294	
ccc ctc aag gcc tta aca ggc cgg gtg gac agt gga acg gag aag cct	4116
Pro Leu Lys Ala Leu Thr Gly Arg Val Asp Ser Gly Thr Glu Lys Pro	
1295 1300 1305 1310	
ggc ttg gtt gct cct gag tcc cct gtt agg aag agc ccc tcc gag tat	4164
Gly Leu Val Ala Pro Glu Ser Pro Val Arg Lys Ser Pro Ser Glu Tyr	
1311 1316 1321 1326	
aag ctg gaa ggt agg tct gtc tca tgc ctg gag ccg atc gag ggc act	4212
Lys Leu Glu Gly Arg Ser Val Ser Cys Leu Glu Pro Ile Glu Gly Thr	
1327 1332 1337 1342	
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Leu Asp Ile Ala Leu Leu Ser Gly Pro Gln Ala Ser Lys Thr Glu Leu	
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cct tcc cca gag tct gca cag agc ccc agc cca agt ggt gac gtg agg	4308
Pro Ser Pro Glu Ser Ala Gln Ser Pro Ser Pro Ser Gly Asp Val Arg	
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Ala Ser Val Pro Pro Val Leu Pro Ser Ser Ser Gly Lys Lys Asn Asp	
1375 1380 1385 1390	
acc acc agt gca aga gag ctt tct cct tcc agc tta aag atg aat aaa	4404
Thr Thr Ser Ala Arg Glu Leu Ser Pro Ser Ser Leu Lys Met Asn Lys	
1391 1396 1401 1406	
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Ser Tyr Leu Leu Glu Pro Trp Phe Leu Pro Pro Ser Arg Gly Leu Gln	
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Asn Ser Pro Ala Val Ser Leu Pro Asp Pro Glu Phe Lys Arg Asp Arg	
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Lys Gly Pro His Pro Thr Ala Arg Ser Pro Gly Thr Val Met Glu Ser	
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Asn Pro Gln Gln Arg Glu Gly Ser Ser Pro Lys His Gln Asp His Thr	
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act gac ccc aag ctt ctg acc tgc ctg ggg cag aac ctc cac agc cct	4644
Thr Asp Pro Lys Leu Leu Thr Cys Leu Gly Gln Asn Leu His Ser Pro	
1471 1476 1481 1486	
gac ctg gcc agg cca cgc tgc ccg ctc cca cct gaa gct tcc ccc tca	4692
Asp Leu Ala Arg Pro Arg Cys Pro Leu Pro Pro Glu Ala Ser Pro Ser	
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agg gag aag cca ggc ctg agg gaa tcg tct gaa aga ggc cct ccc aca	4740
Arg Glu Lys Pro Gly Leu Arg Glu Ser Ser Glu Arg Gly Pro Pro Thr	
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Ala Arg Ser Glu Arg Ser Ala Ala Arg Ala Asp Thr Cys Arg Glu Pro	
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tcc atg gaa ctg tgc ttt cca gaa act gcg aaa acc agt gac aac tcc	4836
Ser Met Glu Leu Cys Phe Pro Glu Thr Ala Lys Thr Ser Asp Asn Ser	
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Lys Asn Leu Leu Ser Val Gly Arg Thr His Pro Asp Phe Tyr Thr Gln	
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acc cag gcc atg gag aaa gca tgg gcg ccg ggt ggg aaa acg aac cac	4932
Thr Gln Ala Met Glu Lys Ala Trp Ala Pro Gly Gly Lys Thr Asn His	
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aaa gat ggc cca ggt gag gcg agg ccc ccg ccc aga gac aac tcc tct	4980
Lys Asp Gly Pro Gly Glu Ala Arg Pro Pro Pro Arg Asp Asn Ser Ser	
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Leu His Ser Ala Gly Ile Pro Cys Glu Lys Glu Leu Gly Lys Val Arg	
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Arg Gly Val Glu Pro Lys Pro Glu Ala Leu Leu Ala Arg Arg Ser Leu	
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Gln Pro Pro Gly Ile Glu Ser Glu Lys Ser Glu Lys Leu Ser Ser Phe	
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Pro Ser Leu Gln Lys Asp Gly Ala Lys Glu Pro Glu Arg Lys Glu Gln	
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Pro Leu Gln Arg His Pro Ser Ser Ile Pro Pro Pro Pro Leu Thr Ala	
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Lys Asp Leu Ser Ser Pro Ala Ala Arg Gln His Cys Ser Ser Pro Ser	
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His Ala Ser Gly Arg Glu Pro Gly Ala Lys Pro Ser Thr Ala Glu Pro	
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Ser Ser Ser Pro Gln Asp Pro Pro Lys Pro Val Ala Ala His Ser Glu	
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Ser Ser Ser His Lys Pro Arg Pro Gly Pro Asp Pro Gly Pro Pro Lys	
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Thr Lys His Pro Asp Arg Ser Leu Ser Ser Gln Lys Pro Ser Val Gly	
1743 1748 1753 1758	
gcc aca aag ggc aaa gag cct gcc act cag tcc ctc ggt ggc tct agc	5508
Ala Thr Lys Gly Lys Glu Pro Ala Thr Gln Ser Leu Gly Gly Ser Ser	
1759 1764 1769 1774	
aga gag ggg aag ggc cac agt aag agt ggg ccg gat gtg ttt cct gct	5556
Arg Glu Gly Lys Gly His Ser Lys Ser Gly Pro Asp Val Phe Pro Ala	
1775 1780 1785 1790	
acc cca ggc tcc cag aac aaa gcc agc gat ggg att ggc cag gga gaa	5604
Thr Pro Gly Ser Gln Asn Lys Ala Ser Asp Gly Ile Gly Gln Gly Glu	
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Gly Gly Pro Ser Val Pro Leu His Thr Asp Arg Ala Pro Leu Asp Ala	
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Lys Pro Gln Pro Thr Ser Gly Gly Arg Pro Leu Glu Val Leu Glu Lys	

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Pro Val His Leu Pro Arg Pro Gly His Pro Gly Pro Ser Glu Pro Ala				
1839	1844	1849	1854	
gac cag aaa ctg tcc gct gtt ggt gaa aag caa acc ctg tct cca aag				5796
Asp Gln Lys Leu Ser Ala Val Gly Glu Lys Gln Thr Leu Ser Pro Lys				
1855	1860	1865	1870	
cac ccc aaa cca tcc act gtg aaa gat tgc ccc acc ctg tgc aaa cag				5844
His Pro Lys Pro Ser Thr Val Lys Asp Cys Pro Thr Leu Cys Lys Gln				
1871	1876	1881	1886	
aca gac aac aga cag aca gac aaa agc ccg agt cag ccg gcc gcc aac				5892
Thr Asp Asn Arg Gln Thr Asp Lys Ser Pro Ser Gln Pro Ala Ala Asn				
1887	1892	1897	1902	
acc gac aga agg gcg gaa ggg aag aaa tgc act gaa gca ctt tat gct				5940
Thr Asp Arg Arg Ala Glu Gly Lys Lys Cys Thr Glu Ala Leu Tyr Ala				
1903	1908	1913	1918	
cca gca gag ggc gac aag ctc gag gcc ggc ctt tcc ttt gtg cat agc				5988
Pro Ala Glu Gly Asp Lys Leu Glu Ala Gly Leu Ser Phe Val His Ser				
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gag aac cgg ttg aaa ggc gcg gag cgg cca gcc gcg ggg gtg ggg aag				6036
Glu Asn Arg Leu Lys Gly Ala Glu Arg Pro Ala Ala Gly Val Gly Lys				
1935	1940	1945	1950	
ggc ttc cct gag gcc aga ggg aaa ggg ccc ggt ccc cag aag cca ccg				6084
Gly Phe Pro Glu Ala Arg Gly Lys Gly Pro Gly Pro Gln Lys Pro Pro				
1951	1956	1961	1966	
acg gag gca gac aag ccc aat ggc atg aaa cgg tcc ccc tca gcc act				6132
Thr Glu Ala Asp Lys Pro Asn Gly Met Lys Arg Ser Pro Ser Ala Thr				
1967	1972	1977	1982	
ggg cag agt tct ttc cga tcc acg gcc ctc ccg gaa aag tct ctg agc				6180
Gly Gln Ser Ser Phe Arg Ser Thr Ala Leu Pro Glu Lys Ser Leu Ser				
1983	1988	1993	1998	
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Cys Ser Ser Ser Phe Pro Glu Thr Arg Ala Gly Val Arg Glu Ala Ser				
1999	2004	2009	2014	
gca gcc agc agc gac acc tct tct gcc aag gcc gcc ggg gcc atg ctg				6276
Ala Ala Ser Ser Asp Thr Ser Ser Ala Lys Ala Ala Gly Gly Met Leu				
2015	2020	2025	2030	
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Glu Leu Pro Ala Pro Ser Asn Arg Asp His Arg Lys Ala Gln Pro Ala				
2031	2036	2041	2046	
ggg gag ggc cga acc cac atg aca aag agt gac tcc ctg ccc tcc ttc				6372
Gly Glu Gly Arg Thr His Met Thr Lys Ser Asp Ser Leu Pro Ser Phe				
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cgg gtc tcc acc ctg cct ctg gag tca cac cac ccc gac cca aac acc	6420
Arg Val Ser Thr Leu Pro Leu Glu Ser His His Pro Asp Pro Asn Thr	
2063 2068 2073 2078	

atg ggc ggg gcc agc cac cgg gac agg gct ctc tcg gtg act gcc acc	6468
Met Gly Gly Ala Ser His Arg Asp Arg Ala Leu Ser Val Thr Ala Thr	
2079 2084 2089 2094	

gta ggg gaa acc aaa ggg aag gac cct gcc cca gcc cag cct ccc cca	6516
Val Gly Glu Thr Lys Gly Lys Asp Pro Ala Pro Ala Gln Pro Pro Pro	
2095 2100 2105 2110	

gct agg aaa cag aac gtg ggc aga gac gtg acc aag cca tcc cca gcc	6564
Ala Arg Lys Gln Asn Val Gly Arg Asp Val Thr Lys Pro Ser Pro Ala	
2111 2116 2121 2126	

cca aac act gac cgc ccc atc tct ctt tct aat gag aag gac ttt gtg	6612
Pro Asn Thr Asp Arg Pro Ile Ser Leu Ser Asn Glu Lys Asp Phe Val	
2127 2132 2137 2142	

gta cgg cag agg cgg ggg aaa gag agt ttg cgt agc agc cct cac aaa	6660
Val Arg Gln Arg Arg Gly Lys Glu Ser Leu Arg Ser Ser Pro His Lys	
2143 2148 2153 2158	

aag gcc ttg taa cgg ggagggccca ggggcaggac tgtggagacc cgtcctgaac	6715
Lys Ala Leu *	
2159	

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aat cca gcc cca tcg ccc cct ctg cga agt cct ggg aag gga aga ctc	96
Asn Pro Ala Pro Ser Pro Pro Leu Arg Ser Pro Gly Lys Gly Arg Leu	
17 22 27 32	

gcc agc ccc atc cta cct caa cgc agc ggc aac ata ccg gag gcc cca	144
Ala Ser Pro Ile Leu Pro Gln Arg Ser Gly Asn Ile Pro Glu Ala Pro	
33 38 43 48	
cgt cga tac gac cca ggc gtc cgc att gga ttg ggc ggt gcg gcg gcg	192
Arg Arg Tyr Asp Pro Gly Val Arg Ile Gly Leu Gly Gly Ala Ala Ala	
49 54 59 64	
ctt ctg tcc gcc ttc cgg tgt cac gcg acc gcc tcc ccc tcc cac cct	240
Leu Leu Ser Ala Phe Arg Cys His Ala Thr Ala Ser Pro Ser His Pro	
65 70 75 80	
tct ctg tct acc tct ggg cgg gac tgc cgg gtg atg aga tac tcg gtc	288
Ser Leu Ser Thr Ser Gly Arg Asp Cys Arg Val Met Arg Tyr Ser Val	
81 86 91 96	
ggc gac ggt aga acg ggc gac ggc gac aac cgc aat cac atc cac gac	336
Gly Asp Gly Arg Thr Gly Asp Gly Asp Asn Arg Asn His Ile His Asp	
97 102 107 112	
ggt gat cat ggc aga ggt gag gag cct att gca ccg ccg ctg gcc ccc	384
Gly Asp His Gly Arg Gly Glu Glu Pro Ile Ala Pro Pro Leu Ala Pro	
113 118 123 128	
cgg acc cgg aag ccg cct ctg agg ccc ggg gac cga gcg ccc gtg tgc	432
Arg Thr Arg Lys Pro Pro Leu Arg Pro Gly Asp Arg Ala Pro Val Cys	
129 134 139 144	
agg tgg gct ggg ttg agg aat cac gcc cag aat aaa gcc aag ctc atc	480
Arg Trp Ala Gly Leu Arg Asn His Ala Gln Asn Lys Ala Lys Leu Ile	
145 150 155 160	
tct gag acc cgg agg agg ttc gaa gct gag tat gtg aca gat aag tca	528
Ser Glu Thr Arg Arg Arg Phe Glu Ala Glu Tyr Val Thr Asp Lys Ser	
161 166 171 176	
gat aaa tat gat gca cgt gat gtt gaa agg cta caa caa gat gat aac	576
Asp Lys Tyr Asp Ala Arg Asp Val Glu Arg Leu Gln Gln Asp Asp Asn	
177 182 187 192	
tgg gtt gaa agt tac tta tct tgg aga cat aat att gta gat gaa aca	624
Trp Val Glu Ser Tyr Leu Ser Trp Arg His Asn Ile Val Asp Glu Thr	
193 198 203 208	
ctg aag atg ctc gat gag agt ttt cag tgg agg aaa gaa att tct gtc	672
Leu Lys Met Leu Asp Glu Ser Phe Gln Trp Arg Lys Glu Ile Ser Val	
209 214 219 224	
aat gtc tgg atc agg gtg aag tat cat gta aaa gac cag aaa acc ata	720
Asn Val Trp Ile Arg Val Lys Tyr His Val Lys Asp Gln Lys Thr Ile	
225 230 235 240	
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Leu Asp Lys Lys Lys Leu Ile Ala Phe Trp Leu Glu Arg Tyr Ala Lys	
241 246 251 256	

agg gaa aat ggg aaa cct gta aca gtg atg ttt gac ctg tca gaa act	816
Arg Glu Asn Gly Lys Pro Val Thr Val Met Phe Asp Leu Ser Glu Thr	
257 262 267 272	
gga ata aat agc att gac atg gac ttt gta cgc ttt atc atc aac tgc	864
Gly Ile Asn Ser Ile Asp Met Asp Phe Val Arg Phe Ile Ile Asn Cys	
273 278 283 288	
ttt aag gtt tat tac cct aaa tac ctc tct gct ttc aaa att gtg aaa	912
Phe Lys Val Tyr Tyr Pro Lys Tyr Leu Ser Ala Phe Lys Ile Val Lys	
289 294 299 304	
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Thr Trp Leu Gly Pro Glu Ala Val Ser Leu Leu Lys Phe Thr Ser Lys	
305 310 315 320	
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Asn Glu Val Gln Asp Tyr Val Ser Val Glu Tyr Leu Pro Pro His Met	
321 326 331 336	
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Gly Gly Thr Asp Pro Phe Lys Tyr Ser Tyr Pro Pro Leu Val Asp Asp	
337 342 347 352	
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353 358 363 368	
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Glu Thr Ser Ser Lys Glu Asp Ile Glu Ser Asp Gly Lys Glu Thr Leu	
369 374 379 384	
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Glu Thr Ile Ser Asn Glu Glu Gln Thr Pro Leu Leu Lys Lys Ile Asn	
385 390 395 400	
cca acc gaa tct act tcc aaa gca gaa gaa aat gaa aaa gtt gat tca	1248
Pro Thr Glu Ser Thr Ser Lys Ala Glu Glu Asn Glu Lys Val Asp Ser	
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Lys Val Lys Ala Phe Lys Lys Pro Leu Ser Val Phe Lys Gly Pro Leu	
417 422 427 432	
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433 438 443 448	
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Gly Glu Lys Lys Thr Leu Ile Val Leu Thr Asn Val Thr Lys Asn Ile	
449 454 459 464	
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Val Ala Phe Lys Val Arg Thr Thr Ala Pro Glu Lys Tyr Arg Val Lys	
465 470 475 480	
cca agc aat agc agc tgt gac ccg ggt gca tca gtg gat ata gtt gtg	1488

Pro	Ser	Asn	Ser	Ser	Cys	Asp	Pro	Gly	Ala	Ser	Val	Asp	Ile	Val	Val	
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Ser	Pro	His	Gly	Gly	Leu	Thr	Val	Ser	Ala	Gln	Asp	Arg	Phe	Leu	Ile	
497					502					507					512	
atg	gct	gca	gaa	atg	gaa	cag	tca	tct	ggc	aca	ggc	cca	gca	gaa	tta	1584
Met	Ala	Ala	Glu	Met	Glu	Gln	Ser	Ser	Gly	Thr	Gly	Pro	Ala	Glu	Leu	
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act	cag	ttt	tgg	aaa	gaa	gtt	ccc	aga	aac	aaa	gtg	atg	gaa	cat	agg	1632
Thr	Gln	Phe	Trp	Lys	Glu	Val	Pro	Arg	Asn	Lys	Val	Met	Glu	His	Arg	
529					534					539					544	
tta	aga	tgc	cat	act	gtt	gaa	agc	agt	aaa	cca	aac	act	ctt	acg	tta	1680
Leu	Arg	Cys	His	Thr	Val	Glu	Ser	Ser	Lys	Pro	Asn	Thr	Leu	Thr	Leu	
545					550					555					560	
aaa	gac	aat	gct	ttc	aat	atg	tca	gat	aaa	acc	agt	gaa	gat	ata	tgt	1728
Lys	Asp	Asn	Ala	Phe	Asn	Met	Ser	Asp	Lys	Thr	Ser	Glu	Asp	Ile	Cys	
561					566					571					576	
cta	caa	ctc	agt	cgt	tta	cta	gaa	agc	aat	agg	aag	ctt	gaa	gac	caa	1776
Leu	Gln	Leu	Ser	Arg	Leu	Leu	Glu	Ser	Asn	Arg	Lys	Leu	Glu	Asp	Gln	
577					582					587					592	
gtt	cag	cgt	tgt	atc	tgg	ttc	cag	cag	ctg	ctg	ctt	tcc	tta	aca	atg	1824
Val	Gln	Arg	Cys	Ile	Trp	Phe	Gln	Gln	Leu	Leu	Leu	Ser	Leu	Thr	Met	
593					598					603					608	
ctc	ttg	ctt	gct	ttt	gtc	acc	tct	ttc	ttc	tat	tta	ttg	tac	agt	taa	1872
Leu	Leu	Leu	Ala	Phe	Val	Thr	Ser	Phe	Phe	Tyr	Leu	Leu	Tyr	Ser	*	
609					614					619					624	
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gcagcacgtg	gaggggaaca	catacatgtc	ttgaaaataa	actgctagaa	taaagaaatg											2052
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	Met Gln Lys Leu Gln Thr Arg Ser	
	1 5	
cct gcc atg tcc ctg tct gac cca ggc ctg ggg tac cac ccc acg tgc	160	
Pro Ala Met Ser Leu Ser Asp Pro Gly Leu Gly Tyr His Pro Thr Cys		
9 14 19 24		
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Trp Thr Leu Arg Trp Pro Pro Leu Cys Ser Leu His Ala Leu His Val		
25 30 35 40		
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Phe His Cys Leu Phe Ser Ser Arg Leu Gly Thr Pro Val Ser Pro Arg		
41 46 51 56		
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Leu Ala Met Asp Pro Asn Cys Ser Cys Glu Ala Gly Gly Ser Cys Ala		
57 62 67 72		
tgc gcc ggc tcc tgc aag tgc aaa aag tgc aaa tgc acc tcc tgc aag	352	
Cys Ala Gly Ser Cys Lys Cys Lys Lys Cys Lys Cys Thr Ser Cys Lys		
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Lys Ser Cys Cys Ser Cys Cys Pro Leu Gly Cys Ala Lys Cys Ala Gln		
89 94 99 104		
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Gly Cys Ile Cys Lys Gly Ala Ser Glu Lys Cys Ser Cys Cys Ala *		
105 110 115 120		
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 <222> (1)...(1856)
 <223> n = a,t,c or g

 <400> 291

ccgcgctttt tgcccgtgaa ggcgcggtga cgcttgagat tggttttggc atgggggcgt 60
cgctgggtggc aatggctaaa gatgcacctg agcaggactt cctcggcatt gaagtgcatt 120
caccggggcgt tgggtgcgtgc ctggcttctg cgcatagaaga aggtttaagc aacctgcgcg 180
tgatgtgtca cgatgcgggtt gaagtgcgtgc ataaaatgat tcctgacaat tcattgcgca 240
tgggtgcagct ctttttccct gaccgcgtggc acaaagcgcg ccataataaa cgccgtatcg 300
ttcaggtgcc gtttgccgaa ctggtaaaaa gcaaaactgca gctggggggc gtattccata 360
tggcgaccga ctgggaacct tatgcggaac atatgcttga agtgatgtct tctattgacg 420
gttataaaaa cctgtcagag agcaatgatt acgtaccgcg tccggcatca cgtccgggtga 480
cgaaatttga acaacgtggt catcgtcttg gtcacggagt atgggactta atgttcgaga 540
gggtgaaata atggcaaaga accgtagccg tcgtctgcgt aaaaaaatgc acatcgacga 600
attccaggaa ttaggatttt cgggtggcatg gcgattcccg gaaggtacat cggaagaaca 660
gattgataaa accgttgatg attttattaa cgaggttatc gaaccgaaca aactggcctt 720
tgacggcagc ggttatctgg cctgggaagg tctgatctgc atgcaggaaa tcggcaaagt 780
caccgaagaa catcaggcga ttgtgcgtaa gtggctggaa gagcgcaaac tggatgaggt 840
acgccccagc gaacttttcg acgtttggtg ggactaagaa agcatacggg cgatgacaaa 900
tgcaaaactg cctgatgcgc tacgcttattc aggcctggaa agatgcacga tcgagtaggc 960
gggataaggt gtttacgccg catccggcat ggaaaacgcg tactttgtta tcaatctggg 1020
gccagcaaat gctggcctga ttttttcttg agggaagact atg atg cgc aaa atg 1075
Met Met Arg Lys Met
1
ctg ctg gcg gca gca ctt tca gtg acg gca atg acc gct cac gcc gac 1123
Leu Leu Ala Ala Ala Leu Ser Val Thr Ala Met Thr Ala His Ala Asp
6 11 16 21
tac cag tgc agc gtc acg ccg cgt gac gat gtg att gtc agc ccg caa 1171
Tyr Gln Cys Ser Val Thr Pro Arg Asp Asp Val Ile Val Ser Pro Gln
22 27 32 37
acc gtg cag gtg aag ggc gaa aac ggc aat ctg gtg atc acg cca gac 1219
Thr Val Gln Val Lys Gly Glu Asn Gly Asn Leu Val Ile Thr Pro Asp
38 43 48 53
ggc aac gtg atg tat aac ggt aag caa tat tcc ctg aat gcc gcc cag 1267
Gly Asn Val Met Tyr Asn Gly Lys Gln Tyr Ser Leu Asn Ala Ala Gln
54 59 64 69
cgc gag cag gcg aag gat tat cag gct gaa cta cgc agc acg ctg ccg 1315
Arg Glu Gln Ala Lys Asp Tyr Gln Ala Glu Leu Arg Ser Thr Leu Pro
70 75 80 85

tgg att gat gaa ggc ggc aaa agc cgc gtc gag aaa gcc cgt att gct	1363
Trp Ile Asp Glu Gly Ala Lys Ser Arg Val Glu Lys Ala Arg Ile Ala	
86 91 96 101	
ctg gat aaa att atc gtt cag gag atg ggc gaa agc agc aaa atg cgc	1411
Leu Asp Lys Ile Ile Val Gln Glu Met Gly Glu Ser Ser Lys Met Arg	
102 107 112 117	
agc cgt ctg acc aaa ctt gat ggc cag ctg aaa gag cag atg aac cgc	1459
Ser Arg Leu Thr Lys Leu Asp Ala Gln Leu Lys Glu Gln Met Asn Arg	
118 123 128 133	
att att gaa acg cgc agc gat ggc ctg acg ttt cac tat aaa gcc att	1507
Ile Ile Glu Thr Arg Ser Asp Gly Leu Thr Phe His Tyr Lys Ala Ile	
134 139 144 149	
gat cag gtt cgc gcc gaa ggc cag caa tta gtg aat cag gca atg ggt	1555
Asp Gln Val Arg Ala Glu Gly Gln Gln Leu Val Asn Gln Ala Met Gly	
150 155 160 165	
gga att tta cag gac agc att aat gaa atg ggc ggc aaa ggc gtg ctg	1603
Gly Ile Leu Gln Asp Ser Ile Asn Glu Met Gly Ala Lys Ala Val Leu	
166 171 176 181	
aaa agc ggc ggt aac cca tta cag aat gtg ctg gga agc ctg ggg ggg	1651
Lys Ser Gly Gly Asn Pro Leu Gln Asn Val Leu Gly Ser Leu Gly Gly	
182 187 192 197	
ctg caa tcc tca atc caa acc gag tgg aaa aag cag gaa aaa gat ttc	1699
Leu Gln Ser Ser Ile Gln Thr Glu Trp Lys Lys Gln Glu Lys Asp Phe	
198 203 208 213	
cag cag ttt ggc aaa gat gtt tgt agc cgc gtt gtg act ctg gaa gat	1747
Gln Gln Phe Gly Lys Asp Val Cys Ser Arg Val Val Thr Leu Glu Asp	
214 219 224 229	
agc cgc aaa gcc ctg gtc ggg aat tta aaa taa tcctctat tttaagacgg	1798
Ser Arg Lys Ala Leu Val Gly Asn Leu Lys *	
230 235 240	
cataatactt ttttatgccg nttaattctt cggttttgta cctgcctcta acttttgta	1856

<210> 292
 <211> 1450
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (30)..(845)

<400> 292
 cggaagtgtt ggactgcagt tgagtggaa atg ggc aac ggc ggg cgg agc ggc 53

Met Gly Asn Gly Gly Arg Ser Gly
1 5

ctg cag cag ggg aag ggg aac gtg gat ggg gtg gca gcg act cct act	101
Leu Gln Gln Gly Lys Gly Asn Val Asp Gly Val Ala Ala Thr Pro Thr	
9 14 19 24	
gct gcc tcg gcc tcc tgc cag tac agg tgc atc gaa tgc aac cag gag	149
Ala Ala Ser Ala Ser Cys Gln Tyr Arg Cys Ile Glu Cys Asn Gln Glu	
25 30 35 40	
gcc aaa gag ttg tac cga gac tat aac cac ggt gtg ctg aag ata acc	197
Ala Lys Glu Leu Tyr Arg Asp Tyr Asn His Gly Val Leu Lys Ile Thr	
41 46 51 56	
atc tgt aaa tcc tgc cag aaa cct gta gac aaa tat atc gag tat gat	245
Ile Cys Lys Ser Cys Gln Lys Pro Val Asp Lys Tyr Ile Glu Tyr Asp	
57 62 67 72	
cct gtt atc atc ttg att aat gct ata ttg tgc aaa gct cag gcc tac	293
Pro Val Ile Ile Leu Ile Asn Ala Ile Leu Cys Lys Ala Gln Ala Tyr	
73 78 83 88	
aga cat att ctt ttc aat act caa ata aat atc cat gga aaa ctc tgc	341
Arg His Ile Leu Phe Asn Thr Gln Ile Asn Ile His Gly Lys Leu Cys	
89 94 99 104	
ata ttt tgt ttg ctt tgt gaa gca tac ctg agg tgg tgg cag ctt caa	389
Ile Phe Cys Leu Leu Cys Glu Ala Tyr Leu Arg Trp Trp Gln Leu Gln	
105 110 115 120	
gat tcc aac cag aat act gcc cct gat gac ttg atc aga tat gct aag	437
Asp Ser Asn Gln Asn Thr Ala Pro Asp Asp Leu Ile Arg Tyr Ala Lys	
121 126 131 136	
gaa tgg gat ttc tat aga atg ttt gcg att gct gct tta gaa caa act	485
Glu Trp Asp Phe Tyr Arg Met Phe Ala Ile Ala Ala Leu Glu Gln Thr	
137 142 147 152	
gcc tat ttt att ggc att ttt acc ttc ctg tgg gta gaa cgg ccc atg	533
Ala Tyr Phe Ile Gly Ile Phe Thr Phe Leu Trp Val Glu Arg Pro Met	
153 158 163 168	
acg gca aaa aaa aag ccc aac ttc att ttg ctg ctg aaa gca tta tta	581
Thr Ala Lys Lys Lys Pro Asn Phe Ile Leu Leu Leu Lys Ala Leu Leu	
169 174 179 184	
tta tct agc tac gga aaa ctc ttg ctg att cca gct gtc att tgg gaa	629
Leu Ser Ser Tyr Gly Lys Leu Leu Leu Ile Pro Ala Val Ile Trp Glu	
185 190 195 200	
cat gac tac aca tct gtg tgc ctc aaa ctc att aaa gta ttt gtt ctt	677
His Asp Tyr Thr Ser Val Cys Leu Lys Leu Ile Lys Val Phe Val Leu	
201 206 211 216	
aca tca aat ttt cag gca att aga gtg acc cta aac atc aac cgt aag	725
Thr Ser Asn Phe Gln Ala Ile Arg Val Thr Leu Asn Ile Asn Arg Lys	

217	222	227	232	
ctc tcc ttc ttg gcc gtg ttg agt ggc tta ctg ctg gaa agc atc atg				773
Leu Ser Phe Leu Ala Val Leu Ser Gly Leu Leu Leu Glu Ser Ile Met				
233	238	243	248	
gtc tac ttc ttc cag agt atg gaa tgg gat gtt gga agt gat tat gcc				821
Val Tyr Phe Phe Gln Ser Met Glu Trp Asp Val Gly Ser Asp Tyr Ala				
249	254	259	264	
atc ttt aaa tct cag gac ttc tga agagttttat tctttcttcac tatctgtggc				875
Ile Phe Lys Ser Gln Asp Phe *				
265	270			
atgaccagct gtatctgaaa gagaaaagac atgaaatata aaccaacctc ctcatctctg				935
ttgagtaaaa tgaagcaaag attggaaaca ctttctgaaa aagaaagcaa tgataatagc				995
ggtggatacc cccccccaca aatgcaccca agagacaagc catttacata cagatattca				1055
cagtcacaca tagaaacacc cacatggaca caaggaatgt tgctgcagag actgaatgac				1115
atgcaacagg tgaaggttta tacgtttatac acaaggccag gtaagcgctc ataattcaca				1175
cataataaaa catctagggtt tcattccttt gacatgttta tatcttttta atttaaattgt				1235
tgttactggc ttaaaatatt ttgtgttctt acaatagaaa cgcttttaaat aaagtctttc				1295
agaataaacc aagtttttgt aaattttcaa ttcaataatt aaggtaatct ttaaaattgg				1355
atgatccaaa aataagtgat aatgaaaacc actgagttat atactttgca agggtaaatt				1415
acatctgaat aaagctgtaa ttaaaaacaa aaaaa				1450

<210> 293
 <211> 2659
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (230) .. (2164)

<400> 293	
ggtccggaat tcccgggtcg acgatttcgt cgccggggag cagtcgcgta cggagctcca	60
tcccttctct gagacgggga ccaggggatg gcagccatgc acctgacagc ctggccccag	120
gaacctattg ttccagaagt cgggtgacct tgaggacgtg gctgtgtact tcaccaggc	180
ggaatgggat ggccgtgtcc ctgcacagag gacctgtac agggatgtg	235
	atg ctg
	Met Leu
	1

gag aat tat ggg aat gtg gca tcc ctg gga ttt cca ctt ctc aaa cct	283
Glu Asn Tyr Gly Asn Val Ala Ser Leu Gly Phe Pro Leu Leu Lys Pro	
3 8 13 18	
gct gtg atc tca caa ctg gag gga gga agt gag ctg ggg ggc tca tct	331
Ala Val Ile Ser Gln Leu Glu Gly Gly Ser Glu Leu Gly Gly Ser Ser	
19 24 29 34	
cca ctg gct gca gga aca ggc ctc cag ggc ctc cag act gta gat att	379
Pro Leu Ala Ala Gly Thr Gly Leu Gln Gly Leu Gln Thr Val Asp Ile	
35 40 45 50	
cag act gac aat gat ttg aca aag gaa atg tat gaa gga aaa gag aat	427
Gln Thr Asp Asn Asp Leu Thr Lys Glu Met Tyr Glu Gly Lys Glu Asn	
51 56 61 66	
gta tca ttt gaa ctt caa aga gac ttt tcc cag gaa aca gac ttt tca	475
Val Ser Phe Glu Leu Gln Arg Asp Phe Ser Gln Glu Thr Asp Phe Ser	
67 72 77 82	
gaa gcc tct ctt cta gag aaa caa cag gaa gtc cac tca gca gga aat	523
Glu Ala Ser Leu Leu Glu Lys Gln Gln Glu Val His Ser Ala Gly Asn	
83 88 93 98	
ata aag aag gag aag agc aac acc att gat gga aca gtg aaa gat gag	571
Ile Lys Lys Glu Lys Ser Asn Thr Ile Asp Gly Thr Val Lys Asp Glu	
99 104 109 114	
aca agc ccc gtg gag gag tgt ttt ttt agt caa agt tca aac tca tat	619
Thr Ser Pro Val Glu Glu Cys Phe Phe Ser Gln Ser Ser Asn Ser Tyr	
115 120 125 130	
cag tgt cat acc atc act gga gag cag ccc tct ggg tgt aca gga ttg	667
Gln Cys His Thr Ile Thr Gly Glu Gln Pro Ser Gly Cys Thr Gly Leu	
131 136 141 146	
ggg aaa tcc atc agc ttt gat aca aaa ctc gtg aag cat gaa ata att	715
Gly Lys Ser Ile Ser Phe Asp Thr Lys Leu Val Lys His Glu Ile Ile	
147 152 157 162	
aat tct gag gaa aga cct ttc aaa tgt gaa gaa tta gta gag ccc ttt	763
Asn Ser Glu Glu Arg Pro Phe Lys Cys Glu Glu Leu Val Glu Pro Phe	
163 168 173 178	
agg tgt gac tct caa ctt att caa cat caa gag aac aac act gag gaa	811
Arg Cys Asp Ser Gln Leu Ile Gln His Gln Glu Asn Asn Thr Glu Glu	
179 184 189 194	
aag cct tat cag tgt tcg gag tgt ggc aaa gct ttc agc att aat gag	859
Lys Pro Tyr Gln Cys Ser Glu Cys Gly Lys Ala Phe Ser Ile Asn Glu	
195 200 205 210	
aaa tta att tgg cat cag aga ctt cac agt ggg gag aaa ccc ttc aaa	907
Lys Leu Ile Trp His Gln Arg Leu His Ser Gly Glu Lys Pro Phe Lys	
211 216 221 226	
tgt gtg gag tgt ggg aaa agc ttc agc tac agt tcc cat tat atc aca	955

451	456	461	466	
cat cag aga att cac	act ggg gag aaa cct	ttt gaa tgt aat gag	tgt	1675
His Gln Arg Ile His	Thr Gly Glu Lys Pro	Phe Glu Cys Asn Glu	Cys	
467	472	477	482	
ggg aga tgc ttt act	tct aaa aga aac cta	ctt gat cat cac cga	atc	1723
Gly Arg Cys Phe Thr	Ser Lys Arg Asn Leu	Leu Asp His His Arg	Ile	
483	488	493	498	
cat act gga gaa aag	ccc tat caa tgt aag	gaa tgt ggg aaa gcc	ttc	1771
His Thr Gly Glu Lys	Pro Tyr Gln Cys Lys	Glu Cys Gly Lys Ala	Phe	
499	504	509	514	
agt atc aat gcc aaa	cta act agg cat cag	agg ata cat act ggg	gag	1819
Ser Ile Asn Ala Lys	Leu Thr Arg His Gln	Arg Ile His Thr Gly	Glu	
515	520	525	530	
aaa cct ttc aaa tgt	atg gaa tgt gag aaa	gca ttc agc tgt agt	tct	1867
Lys Pro Phe Lys Cys	Met Glu Cys Glu Lys	Ala Phe Ser Cys Ser	Ser	
531	536	541	546	
aac tat att gtg cac	cag aga atc cat aca	gga gag aaa ccc ttt	cag	1915
Asn Tyr Ile Val His	Gln Arg Ile His Thr	Gly Glu Lys Pro Phe	Gln	
547	552	557	562	
tgt aag gag tgt gga	aaa gcc ttc cat gtt	aat gcc cat tta att	cgg	1963
Cys Lys Glu Cys Gly	Lys Ala Phe His Val	Asn Ala His Leu Ile	Arg	
563	568	573	578	
cat cag aga agc cac	act ggg gag aaa ccc	ttc aga tgt gtg gaa	tgt	2011
His Gln Arg Ser His	Thr Gly Glu Lys Pro	Phe Arg Cys Val Glu	Cys	
579	584	589	594	
ggc aaa ggc ttc agc	ttt agt tct gac tac	att ata cat cag aca	gtc	2059
Gly Lys Gly Phe Ser	Phe Ser Ser Asp Tyr	Ile Ile His Gln Thr	Val	
595	600	605	610	
cac act tgg aag aaa	ccc tat atg tgt agt	gtg tgt ggg aaa gca	ttc	2107
His Thr Trp Lys Lys	Pro Tyr Met Cys Ser	Val Cys Gly Lys Ala	Phe	
611	616	621	626	
agg ttt agc ttc cag	ctc agt cag cat cag	agt gtc cat agt gaa	gga	2155
Arg Phe Ser Phe Gln	Leu Ser Gln His Gln	Ser Val His Ser Glu	Gly	
627	632	637	642	
aaa tcc taa taatgag	aaagatatag aaaactctta	aggttaatgc caaaatggat		2211
Lys Ser *				
643				
caagtatcat cagattcatc	cattgaaaaa cctccaagag	ggcatgaata tggcagagtc		2271
ttcatatgga aacagttttt	attctattca gtttaaatca	ggaaaggatg accagttaaa		2331
gagaaacatc caaaaatagc	tttgttttgt accaacagga	attagaaaat ataataaaaa		2391
gatttcgttc ccagcagcat	caagaaaagt agattttcta	gaaataaaca gttatggagg		2451

acttgatg agaaatttaa gtcttctactg agggccactt tacaaaggaa atttgaataa 2511
 atggagagag agagaagcct tgttggttga taggaaaacc cgtactaaag atactctacc 2571
 tacattaatt tatttggttta atttttgaca acaagcatgt attacttttg aaaagatgaa 2631
 aaataaagat ttattttaaaa aaaaaaaaaa 2659

<210> 294
 <211> 510
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (53)..(352)

<400> 294
 cccggccagt gcatacaatt tacgtgacac tatagaagag ctatgacgtc gc atg 55
 Met
 1
 cac gcg tac gta agc ttg gat cct cta gag cgg ccg cct act act act 103
 His Ala Tyr Val Ser Leu Asp Pro Leu Glu Arg Pro Pro Thr Thr Thr
 2 7 12 17
 aaa ttc gcg gcc gcg tcc gac cgc cgc cgc gcc gcc atc atg gac acc 151
 Lys Phe Ala Ala Ala Ser Asp Arg Arg Arg Ala Ala Ile Met Asp Thr
 18 23 28 33
 agc cgt gtg cag cct atc aag ctg gcc agg gtc acc aag gtc ctg ggc 199
 Ser Arg Val Gln Pro Ile Lys Leu Ala Arg Val Thr Lys Val Leu Gly
 34 39 44 49
 agg acc ggt tct cag gga cag tgc acg cag gtg cgc gtg gaa ttc atg 247
 Arg Thr Gly Ser Gln Gly Gln Cys Thr Gln Val Arg Val Glu Phe Met
 50 55 60 65
 gac gac acg agc cga tcc atc atc cgc aat gta aaa ggc ccc gtg cgc 295
 Asp Asp Thr Ser Arg Ser Ile Ile Arg Asn Val Lys Gly Pro Val Arg
 66 71 76 81
 gag ggc gac gtg ctc acc ctt ttg gag tca gag cga gaa gcc cgg agg 343
 Glu Gly Asp Val Leu Thr Leu Leu Glu Ser Glu Arg Glu Ala Arg Arg
 82 87 92 97
 ttg cgc tga gcttggc tgctcgtctg gtcttggatg tcgggttcga ccacttggcc 399
 Leu Arg *
 98
 gatgggaatg gtctgtcaca atctgtcct tttttttgtc cgccacacgt aactgagatg 459
 ctcttttaaa taaagcgttt gtgtttcaag ttaactcaga aaaaaaaaaa a 510

<210> 295
 <211> 997
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (67)..(948)

<400> 295
 aaggatcctt aattaaatta atcccccccc ccccccccc cgggtttttt tccgacaaaa 60
 caccaa atg gcg gat gac gcc ggt gca gcg ggg ggg ccc ggg ggc cct 108
 Met Ala Asp Asp Ala Gly Ala Ala Gly Gly Pro Gly Gly Pro
 1 5 10
 ggt ggc cct ggg atg ggg aac cgc ggt ggc ttc cgc gga ggt ttc ggc 156
 Gly Gly Pro Gly Met Gly Asn Arg Gly Gly Phe Arg Gly Gly Phe Gly
 15 20 25 30
 agt ggc atc cgg ggc cgg ggt cgc ggc cgt gga cgg ggc cgg ggc cga 204
 Ser Gly Ile Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg
 31 36 41 46
 ggc cgc gga gct cgc gga ggc aag gcc gag gat aag gag tgg atg ccc 252
 Gly Arg Gly Ala Arg Gly Gly Lys Ala Glu Asp Lys Glu Trp Met Pro
 47 52 57 62
 gtc acc aag ttg ggc cgc ttg gtc aag gac atg aag atc aag tcc ctg 300
 Val Thr Lys Leu Gly Arg Leu Val Lys Asp Met Lys Ile Lys Ser Leu
 63 68 73 78
 gag gag atc tat ctc ttc tcc ctg ccc att aag gaa tca gag atc att 348
 Glu Glu Ile Tyr Leu Phe Ser Leu Pro Ile Lys Glu Ser Glu Ile Ile
 79 84 89 94
 gat ttc ttc ctg ggg gcc tct ctc aag gat gag gtt ttg aag att atg 396
 Asp Phe Phe Leu Gly Ala Ser Leu Lys Asp Glu Val Leu Lys Ile Met
 95 100 105 110
 cca gtg cag aag cag acc cgt gcc ggc cag cgc acc agg ttc aag gca 444
 Pro Val Gln Lys Gln Thr Arg Ala Gly Gln Arg Thr Arg Phe Lys Ala
 111 116 121 126
 ttt gtt gct atc ggg gac tac aat ggc cac gtc ggt ctg ggt gtt aag 492
 Phe Val Ala Ile Gly Asp Tyr Asn Gly His Val Gly Leu Gly Val Lys
 127 132 137 142
 tgc tcc aag gag gtg gcc acc gcc atc cgt ggg gcc atc atc ctg gcc 540
 Cys Ser Lys Glu Val Ala Thr Ala Ile Arg Gly Ala Ile Ile Leu Ala
 143 148 153 158
 aag ctc tcc atc gtc ccc gtg cgc aga ggc tac tgg ggg aac aag atc 588

Lys	Leu	Ser	Ile	Val	Pro	Val	Arg	Arg	Gly	Tyr	Trp	Gly	Asn	Lys	Ile	
159					164					169					174	
ggc	aag	ccc	cac	act	gtc	cct	tgc	aag	gtg	aca	ggc	cgc	tgc	ggc	tct	636
Gly	Lys	Pro	His	Thr	Val	Pro	Cys	Lys	Val	Thr	Gly	Arg	Cys	Gly	Ser	
175					180					185					190	
gtg	ctg	gta	cgc	ctc	atc	cct	gca	ccc	agg	ggc	act	ggc	atc	gtc	tcc	684
Val	Leu	Val	Arg	Leu	Ile	Pro	Ala	Pro	Arg	Gly	Thr	Gly	Ile	Val	Ser	
191					196					201					206	
gca	cct	gtg	cct	aag	aag	ctg	ctc	atg	atg	gct	ggt	atc	gat	gac	tgc	732
Ala	Pro	Val	Pro	Lys	Lys	Leu	Leu	Met	Met	Ala	Gly	Ile	Asp	Asp	Cys	
207					212					217					222	
tac	acc	tca	gcc	cgg	ggc	tgc	act	gcc	acc	ctg	ggc	aac	ttc	gcc	aag	780
Tyr	Thr	Ser	Ala	Arg	Gly	Cys	Thr	Ala	Thr	Leu	Gly	Asn	Phe	Ala	Lys	
223					228					233					238	
gcc	acc	ttt	gat	gcc	att	tct	aag	acc	tac	agc	tac	ctg	acc	ccc	gac	828
Ala	Thr	Phe	Asp	Ala	Ile	Ser	Lys	Thr	Tyr	Ser	Tyr	Leu	Thr	Pro	Asp	
239					244					249					254	
ctc	tgg	aag	gag	act	gta	ttc	acc	aag	tct	ccc	tat	cag	gag	ttc	act	876
Leu	Trp	Lys	Glu	Thr	Val	Phe	Thr	Lys	Ser	Pro	Tyr	Gln	Glu	Phe	Thr	
255					260					265					270	
gac	cac	ctc	gtc	aag	acc	cac	acc	aga	gtc	tcc	gtg	cag	cgg	act	cag	924
Asp	His	Leu	Val	Lys	Thr	His	Thr	Arg	Val	Ser	Val	Gln	Arg	Thr	Gln	
271					276					281					286	
gct	cca	gct	gtg	gct	aca	aca	tag	ggtttttata	caagaaaaat	aaagtgaatt						978
Ala	Pro	Ala	Val	Ala	Thr	Thr	*									
287					292											
aagcgtgaaa	aaaaaaaaa															997

<210> 296
 <211> 3323
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (162) .. (3323)

<400> 296	
gtaccgggtcc ggaattcccc ggtcgacgat ttcgtgcggc tcgcgggtcc tccaccgcct	60
ccgccgccgc atcctccgct tgtgctaccg ccgcggggcg tgggccgctc tgctgggtccg	120
gcatgagacc gtgagacgag agacgggtcg gggccgccga c atg ttt ggc cgc	173
Met Phe Gly Arg	

tcg cgg agc tgg gtg ggc ggg ggc cat ggc aag act tcc cgc aac atc	221
Ser Arg Ser Trp Val Gly Gly Gly His Gly Lys Thr Ser Arg Asn Ile	
5 10 15 20	
cac tcc ttg gac cac ctc aag tat ctg tac cac gtt ttg acc aaa aac	269
His Ser Leu Asp His Leu Lys Tyr Leu Tyr His Val Leu Thr Lys Asn	
21 26 31 36	
acc aca gtc aca gaa cag aac cgg aac ctg cta gtg gag acc atc cgt	317
Thr Thr Val Thr Glu Gln Asn Arg Asn Leu Leu Val Glu Thr Ile Arg	
37 42 47 52	
tcc atc act gag atc ctg atc tgg gga gat caa aat gac agc tct gta	365
Ser Ile Thr Glu Ile Leu Ile Trp Gly Asp Gln Asn Asp Ser Ser Val	
53 58 63 68	
ttt gac ttc ttc ctg gag aag aat atg ttt gtt ttc ttc ttg aac atc	413
Phe Asp Phe Phe Leu Glu Lys Asn Met Phe Val Phe Phe Leu Asn Ile	
69 74 79 84	
ttg cgg caa aag tgc ggc cgt tac gtg tgc gtt cag ctg ctg cag acc	461
Leu Arg Gln Lys Ser Gly Arg Tyr Val Cys Val Gln Leu Leu Gln Thr	
85 90 95 100	
ttg aac atc ctc ttt gag aac atc agt cac gag acc tca ctt tat tat	509
Leu Asn Ile Leu Phe Glu Asn Ile Ser His Glu Thr Ser Leu Tyr Tyr	
101 106 111 116	
ttg ctc tca aat aac tac gta aat tct atc atc gtt cat aaa ttt gac	557
Leu Leu Ser Asn Asn Tyr Val Asn Ser Ile Ile Val His Lys Phe Asp	
117 122 127 132	
ttt tct gat gag gag att atg gcc tat tat ata tgc ttc ctg aaa aca	605
Phe Ser Asp Glu Glu Ile Met Ala Tyr Tyr Ile Ser Phe Leu Lys Thr	
133 138 143 148	
ctt tgc tta aaa ctc aac aac cac act gtc cat ttc ttt tat aat gag	653
Leu Ser Leu Lys Leu Asn Asn His Thr Val His Phe Phe Tyr Asn Glu	
149 154 159 164	
cac acc aat gac ttt gcc ctg tac aca gaa gcc atc aag ttt ttc aac	701
His Thr Asn Asp Phe Ala Leu Tyr Thr Glu Ala Ile Lys Phe Phe Asn	
165 170 175 180	
cac cct gaa agc atg gtt aga att gct gta aga acc ata act ttg aat	749
His Pro Glu Ser Met Val Arg Ile Ala Val Arg Thr Ile Thr Leu Asn	
181 186 191 196	
gtc tat aaa gtg tca ttg gat aac cag gcc atg ctg cac tac atc cga	797
Val Tyr Lys Val Ser Leu Asp Asn Gln Ala Met Leu His Tyr Ile Arg	
197 202 207 212	
gat aaa act gct gtt cct tac ttc tcc aat ttg gtc tgg ttc att ggg	845
Asp Lys Thr Ala Val Pro Tyr Phe Ser Asn Leu Val Trp Phe Ile Gly	
213 218 223 228	

agc cat gtg atc gaa ctc gat gac tgc gtg cag act gat gag gag cat	893
Ser His Val Ile Glu Leu Asp Asp Cys Val Gln Thr Asp Glu Glu His	
229 234 239 244	
cgg aat cgg ggt aaa ctg agt gat ctg gtg gca gag cac cta gac cac	941
Arg Asn Arg Gly Lys Leu Ser Asp Leu Val Ala Glu His Leu Asp His	
245 250 255 260	
ctg cac tat ctc aat gac atc ctg atc atc aac tgt gag ttc ctc aac	989
Leu His Tyr Leu Asn Asp Ile Leu Ile Ile Asn Cys Glu Phe Leu Asn	
261 266 271 276	
gat gtg ctc act gac cac ctg ctc aac agg ctc ttc ctg ccc ctc tac	1037
Asp Val Leu Thr Asp His Leu Leu Asn Arg Leu Phe Leu Pro Leu Tyr	
277 282 287 292	
gtg tac tca ctg gag aac cag gac aag gga gga gaa cgg ccg aaa att	1085
Val Tyr Ser Leu Glu Asn Gln Asp Lys Gly Gly Glu Arg Pro Lys Ile	
293 298 303 308	
agc ctg ccg gtg tct ctt tat ctt ctg tca cag gtc ttc tta att ata	1133
Ser Leu Pro Val Ser Leu Tyr Leu Leu Ser Gln Val Phe Leu Ile Ile	
309 314 319 324	
cat cat gca ccg ctg gtg aac tcg tta gct gaa gtc att ctg aat ggt	1181
His His Ala Pro Leu Val Asn Ser Leu Ala Glu Val Ile Leu Asn Gly	
325 330 335 340	
gat ctg tct gag atg tac gct aag act gaa cag gat att cag aga agt	1229
Asp Leu Ser Glu Met Tyr Ala Lys Thr Glu Gln Asp Ile Gln Arg Ser	
341 346 351 356	
tct gcc aag ccc agc att cgg tgc ttc att aaa ccc acc gag aca ctc	1277
Ser Ala Lys Pro Ser Ile Arg Cys Phe Ile Lys Pro Thr Glu Thr Leu	
357 362 367 372	
gag cgg tcc ctt gag atg aac aag cac aag ggc aag agg cgg gtg caa	1325
Glu Arg Ser Leu Glu Met Asn Lys His Lys Gly Lys Arg Arg Val Gln	
373 378 383 388	
aag aga ccc aac tac aaa aac gtt ggg gaa gaa gaa gat gag gag aaa	1373
Lys Arg Pro Asn Tyr Lys Asn Val Gly Glu Glu Glu Asp Glu Glu Lys	
389 394 399 404	
ggg ccc acc gag gat gcc caa gaa gac gcc gag aag gct aaa ggt aca	1421
Gly Pro Thr Glu Asp Ala Gln Glu Asp Ala Glu Lys Ala Lys Gly Thr	
405 410 415 420	
gag ggt ggt tca aaa ggc atc aag acg agt ggg gag agt gaa gag atc	1469
Glu Gly Gly Ser Lys Gly Ile Lys Thr Ser Gly Glu Ser Glu Glu Ile	
421 426 431 436	
gag atg gtg atc atg gag cgt agc aag ctc tca gag ctg gcc gcc agc	1517
Glu Met Val Ile Met Glu Arg Ser Lys Leu Ser Glu Leu Ala Ala Ser	
437 442 447 452	
acc tcc gtg cag gag cag aac acc acg gac gag gag aaa agc gcc gcc	1565

Thr	Ser	Val	Gln	Glu	Gln	Asn	Thr	Thr	Asp	Glu	Glu	Lys	Ser	Ala	Ala		
453					458					463					468		
gcc	acc	tgc	tct	gag	agc	acg	caa	tgg	agc	aga	ccc	ttc	ctg	gat	atg	1613	
Ala	Thr	Cys	Ser	Glu	Ser	Thr	Gln	Trp	Ser	Arg	Pro	Phe	Leu	Asp	Met		
469					474				479						484		
gtg	tac	cac	gcg	ctg	gac	agc	ccg	gat	gat	gat	tac	cat	gcc	ctg	ttc	1661	
Val	Tyr	His	Ala	Leu	Asp	Ser	Pro	Asp	Asp	Asp	Tyr	His	Ala	Leu	Phe		
485					490				495						500		
gtg	ctc	tgc	ctc	ctc	tat	gcc	atg	tct	cat	aat	aaa	ggc	atg	gat	cct	1709	
Val	Leu	Cys	Leu	Leu	Tyr	Ala	Met	Ser	His	Asn	Lys	Gly	Met	Asp	Pro		
501					506					511					516		
gaa	aaa	tta	gag	cga	atc	cag	ctc	ccc	gtg	cca	aat	gcg	gcc	gag	aag	1757	
Glu	Lys	Leu	Glu	Arg	Ile	Gln	Leu	Pro	Val	Pro	Asn	Ala	Ala	Glu	Lys		
517					522					527					532		
acc	acc	tac	aac	cac	ccg	cta	gct	gaa	aga	ctc	atc	agg	atc	atg	aac	1805	
Thr	Thr	Tyr	Asn	His	Pro	Leu	Ala	Glu	Arg	Leu	Ile	Arg	Ile	Met	Asn		
533					538					543					548		
aac	gct	gcc	cag	cca	gat	ggg	aag	atc	cgg	ctg	gcg	acg	ctg	gag	ctg	1853	
Asn	Ala	Ala	Gln	Pro	Asp	Gly	Lys	Ile	Arg	Leu	Ala	Thr	Leu	Glu	Leu		
549					554					559					564		
agc	tgc	ctg	ctt	ctg	aag	cag	caa	gtc	ctg	atg	agt	gct	ggc	tgc	atc	1901	
Ser	Cys	Leu	Leu	Leu	Lys	Gln	Gln	Val	Leu	Met	Ser	Ala	Gly	Cys	Ile		
565					570					575					580		
atg	aag	gac	gtg	cac	ctg	gcc	tgc	ctg	gag	ggt	gcg	aga	gaa	gaa	agt	1949	
Met	Lys	Asp	Val	His	Leu	Ala	Cys	Leu	Glu	Gly	Ala	Arg	Glu	Glu	Ser		
581					586					591					596		
gtt	cac	ctt	gta	cga	cat	ttt	tat	aag	gga	gaa	gac	att	ttt	ttg	gac	1997	
Val	His	Leu	Val	Arg	His	Phe	Tyr	Lys	Gly	Glu	Asp	Ile	Phe	Leu	Asp		
597					602					607					612		
atg	ttt	gaa	gat	gag	tat	agg	agc	atg	aca	atg	aag	ccc	atg	aac	gtg	2045	
Met	Phe	Glu	Asp	Glu	Tyr	Arg	Ser	Met	Thr	Met	Lys	Pro	Met	Asn	Val		
613					618					623					628		
gaa	tat	ctc	atg	atg	gac	gcc	tcc	atc	ctg	ctg	ccc	cca	aca	ggc	acg	2093	
Glu	Tyr	Leu	Met	Met	Asp	Ala	Ser	Ile	Leu	Leu	Pro	Pro	Thr	Gly	Thr		
629					634					639					644		
cca	ctg	acg	ggc	att	gac	ttc	gtg	aag	cgg	ctg	ccg	tgt	ggc	gat	gtg	2141	
Pro	Leu	Thr	Gly	Ile	Asp	Phe	Val	Lys	Arg	Leu	Pro	Cys	Gly	Asp	Val		
645					650					655					660		
gag	aag	acc	cgg	cgg	gcc	atc	cgg	gtg	ttc	ttc	atg	ctg	cgt	tcc	ctg	2189	
Glu	Lys	Thr	Arg	Arg	Ala	Ile	Arg	Val	Phe	Phe	Met	Leu	Arg	Ser	Leu		
661					666					671					676		
tca	ctg	caa	ttg	cga	ggg	gag	cct	gag	aca	cag	ttg	ccg	ctg	act	cgg	2237	
Ser	Leu	Gln	Leu	Arg	Gly	Glu	Pro	Glu	Thr	Gln	Leu	Pro	Leu	Thr	Arg		

677	682	687	692	
gag gag gac ctg atc aag act gat gat gtc ctg gat ctg aat aac agc				2285
Glu Glu Asp Leu Ile Lys Thr Asp Asp Val Leu Asp Leu Asn Asn Ser				
693	698	703	708	
gac ttg att gca tgt aca gtg atc acc aag gat ggc ggc atg gtc cag				2333
Asp Leu Ile Ala Cys Thr Val Ile Thr Lys Asp Gly Gly Met Val Gln				
709	714	719	724	
cga ttc ctg gct gtg gat att tac cag atg agt ttg gtg gag cct gat				2381
Arg Phe Leu Ala Val Asp Ile Tyr Gln Met Ser Leu Val Glu Pro Asp				
725	730	735	740	
gtg tcc agg ctt ggc tgg gga gtg gtc aag ttt gca ggc cta ttg cag				2429
Val Ser Arg Leu Gly Trp Gly Val Val Lys Phe Ala Gly Leu Leu Gln				
741	746	751	756	
gac atg cag gtg act ggc gtg gag gac gac agc cgt gcc ctg aac atc				2477
Asp Met Gln Val Thr Gly Val Glu Asp Asp Ser Arg Ala Leu Asn Ile				
757	762	767	772	
acc atc cac aag cct gcg tcc agc ccc cat tcc aag ccc ttc ccc atc				2525
Thr Ile His Lys Pro Ala Ser Ser Pro His Ser Lys Pro Phe Pro Ile				
773	778	783	788	
ctc cag gcc acc ttc atc ttc tca gac cac atc cgc tgc atc atc gcc				2573
Leu Gln Ala Thr Phe Ile Phe Ser Asp His Ile Arg Cys Ile Ile Ala				
789	794	799	804	
aag cag cgc ctg gcc aaa ggc cgc atc cag gca agg cgc atg aag atg				2621
Lys Gln Arg Leu Ala Lys Gly Arg Ile Gln Ala Arg Arg Met Lys Met				
805	810	815	820	
cag aga ata gct gcc ctc ctg gac ctc cca atc cag ccc acc act gaa				2669
Gln Arg Ile Ala Ala Leu Leu Asp Leu Pro Ile Gln Pro Thr Thr Glu				
821	826	831	836	
gtc ctg ggg ttt gga ctc ggc tcc tcc acc tcc act cag cac ctg cct				2717
Val Leu Gly Phe Gly Leu Gly Ser Ser Thr Ser Thr Gln His Leu Pro				
837	842	847	852	
ttc cgc ttc tac gac cag ggg cgc cgg ggc agc agc gac ccc aca gtg				2765
Phe Arg Phe Tyr Asp Gln Gly Arg Arg Gly Ser Ser Asp Pro Thr Val				
853	858	863	868	
cag cgc tcc gtg ttt gca tgc gtg gac aag gtg cca ggc ttc gcc gtg				2813
Gln Arg Ser Val Phe Ala Ser Val Asp Lys Val Pro Gly Phe Ala Val				
869	874	879	884	
gcc cag tgc ata aac cag cac agc tcc ccg tcc ctg tcc tca cag tgc				2861
Ala Gln Cys Ile Asn Gln His Ser Ser Pro Ser Leu Ser Ser Gln Ser				
885	890	895	900	
cca ccc tcc gcc agc ggg agc ccc agc ggc agc ggg agc acc agc cac				2909
Pro Pro Ser Ala Ser Gly Ser Pro Ser Gly Ser Gly Ser Thr Ser His				
901	906	911	916	

tgc gac tct gga ggc acc agc tcg tcc tcc acc ccc tcc aca gcc cag	2957
Cys Asp Ser Gly Gly Thr Ser Ser Ser Ser Thr Pro Ser Thr Ala Gln	
917 922 927 932	
agt cca gca gat gcc ccc atg agt cca gaa ctg cct aag cct cac ctt	3005
Ser Pro Ala Asp Ala Pro Met Ser Pro Glu Leu Pro Lys Pro His Leu	
933 938 943 948	
cct gac cag ttg gta atc gtc aac gaa acg gaa gca gac tct aag ccc	3053
Pro Asp Gln Leu Val Ile Val Asn Glu Thr Glu Ala Asp Ser Lys Pro	
949 954 959 964	
agc aag aac gtg gcc agg agc gca gcc gtg gag aca gcc agc ctg tcc	3101
Ser Lys Asn Val Ala Arg Ser Ala Ala Val Glu Thr Ala Ser Leu Ser	
965 970 975 980	
ccc agc ctc gtc cct gcc cgg cag ccc acc att tcc ctg ctc tgc gag	3149
Pro Ser Leu Val Pro Ala Arg Gln Pro Thr Ile Ser Leu Leu Cys Glu	
981 986 991 996	
gac acg gct gac acg ctg agc gtc gaa tcg ctg acc ctt gtc ccc cca	3197
Asp Thr Ala Asp Thr Leu Ser Val Glu Ser Leu Thr Leu Val Pro Pro	
997 1002 1007 1012	
gtt gac ccc cac agc ctc cgc agc ctc acc ggc atg ccc ccg ctg tcc	3245
Val Asp Pro His Ser Leu Arg Ser Leu Thr Gly Met Pro Pro Leu Ser	
1013 1018 1023 1028	
acg ccg gct gcc gcc tgc aca gag ccc gtg ggc gaa gag gct gca tgt	3293
Thr Pro Ala Ala Ala Cys Thr Glu Pro Val Gly Glu Glu Ala Ala Cys	
1029 1034 1039 1044	
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Ala Glu Pro Val Gly Thr Ala Glu Asp *	
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gccaaaaata ctgagtaact tcacattcag agggactgtt tcttctctct atatatagca	180

agtcaaaaat agacatctcg gattctgggc cccagcacc atctttgtac tcaccttcc 240
 tcaaattcca ccatttacac cctcggagcc cctgttttat ctgctttag atttctctga 300
 cacctgccaa ttggcagctc cacgtcctcc tcaacatttt tactctttca ttaaggtgta 360
 aggagaattc aacaccattg ggcacaa atg cat gaa tgc aat gtc cat aca 411
 Met His Glu Cys Asn Val His Thr
 1 5

tac gcc tct tta ttt tgc ctt ttt ctg ctt cat act ggt aag ctt tgc 459
 Tyr Ala Ser Leu Phe Cys Leu Phe Leu Leu His Thr Gly Lys Leu Cys
 9 14 19 24
 tgt cta aat tct cac cgg cac ttt cat tgc ata aaa tat tcc aaa tga 507
 Cys Leu Asn Ser His Arg His Phe His Cys Ile Lys Tyr Ser Lys *
 25 30 35 40

ggccatgctc agcgttcaga actactccct gtaccaccag ccatatttca acaatgtggg 567
 aaccgtttcc tatagactgg ggtctggagt tctcagtgac aaggagaata atgtaaacad 627
 aagatgacga tgataatgaa gaaatactct ggacggcttt tatcacctag gatccacagg 687
 aagcctgcc aagaggcaga agcacattcc atcagcagag ggcacattat caatgcagcc 747
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 tccggaacgg tactcccagg cgtacggctt cataaa 843

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 tgagcctggg aggtgtaggt tgacgtgagc cgggatcgca ccaactgcact ccagcctggg 180
 caacggctgg ctacgcttta aacttaagct tccggaattc ccgggtcgac gatttcgtcc 240
 gcggacgaag atg gcg acc gcc atg tac ttg gag cac tat ctg gac agt 289
 Met Ala Thr Ala Met Tyr Leu Glu His Tyr Leu Asp Ser
 1 5 10
 atc gag aac ctt ccc tgc gaa ctt cag agg aac ttc cag ctg atg cga 337
 Ile Glu Asn Leu Pro Cys Glu Leu Gln Arg Asn Phe Gln Leu Met Arg

14	19	24	29	
gag ctg gac cag agg acg gaa gat aag aaa gca gag att gac atc ctg				385
Glu Leu Asp Gln Arg Thr Glu Asp Lys Lys Ala Glu Ile Asp Ile Leu				
30	35	40	45	
gct gca gag tac atc tcc acg gtg aag acg ctg tct cca gac cag cgc				433
Ala Ala Glu Tyr Ile Ser Thr Val Lys Thr Leu Ser Pro Asp Gln Arg				
46	51	56	61	
gtg gag cgc ctg cag aag atc cag aac gcc tac agc aag tgc aag gaa				481
Val Glu Arg Leu Gln Lys Ile Gln Asn Ala Tyr Ser Lys Cys Lys Glu				
62	67	72	77	
tac agt gac gac aaa gtg cag ctg gcc atg cag acc tac gag atg gtg				529
Tyr Ser Asp Asp Lys Val Gln Leu Ala Met Gln Thr Tyr Glu Met Val				
78	83	88	93	
gat aaa cac att cga agg ctt gat gca gac ctg gcg cgc ttt gaa gca				577
Asp Lys His Ile Arg Arg Leu Asp Ala Asp Leu Ala Arg Phe Glu Ala				
94	99	104	109	
gat ctg aag gac aag atg gag ggc agt gat ttt gaa agc tcc gga ggg				625
Asp Leu Lys Asp Lys Met Glu Gly Ser Asp Phe Glu Ser Ser Gly Gly				
110	115	120	125	
cga ggg tta aaa aaa ggc ctg cgt cag aaa gaa aaa aga ggg tcc cgg				673
Arg Gly Leu Lys Lys Gly Leu Arg Gln Lys Glu Lys Arg Gly Ser Arg				
126	131	136	141	
ggc cga ggc agg agg aca tca gag gaa gac aca cca aag aaa aag aag				721
Gly Arg Gly Arg Arg Thr Ser Glu Glu Asp Thr Pro Lys Lys Lys Lys				
142	147	152	157	
cac aaa gga ggg tct gag ttc act gac acc atc ctg tcc gtg cac ccc				769
His Lys Gly Gly Ser Glu Phe Thr Asp Thr Ile Leu Ser Val His Pro				
158	163	168	173	
tct gat gtg ctg gac atg ccc gtg gac cca aac gaa ccc acg tac tgc				817
Ser Asp Val Leu Asp Met Pro Val Asp Pro Asn Glu Pro Thr Tyr Cys				
174	179	184	189	
ctg tgc cac cag gtc tcc tat ggg gag atg att ggc tgt gac aat cca				865
Leu Cys His Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Pro				
190	195	200	205	
gac tgt cca att gag tgg ttt cac ttt gcc tgc gtg gac ctt acc acg				913
Asp Cys Pro Ile Glu Trp Phe His Phe Ala Cys Val Asp Leu Thr Thr				
206	211	216	221	
aaa ccc aaa gga aaa tga tttcat ttaaataaaa acctgtagtc tgggcaacat				967
Lys Pro Lys Gly Lys *				
222	227			
cgggagaccc caactctaca aaaaatacaa aaattagtagtc ctgtcctctt agccacagtg				1027
tgtgtctgccc cactagggac aggaggatgg tgagcaacgt gttgttgaca gaggccaatg				1087

tagaccactc ttttaagtagc tagatttctg tataatctgtc agttatttta tgtgtcaaca 1147
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 ttaacttgaa gttttttgag atactttatt taaagcattc tcccactgac accctccctg 1267
 ccaaaggtgt tgtataccct ccaaagagat cgtagcatta cctcagagga gtggcattta 1327
 gagtaaagag aaaatgctca aatgccacgt agcctctctc cagatgatct ctgagaggga 1387
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<220>
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 <222> (88) .. (3927)

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 Met Pro Ala Val Arg Val Trp Asp
 1 5
 gtg gca gag cac agc cag gtg gcc gag ctg cag gag cac aag tat ggt 159
 Val Ala Glu His Ser Gln Val Ala Glu Leu Gln Glu His Lys Tyr Gly
 9 14 19 24
 gtg gct tgt gtg gcc ttc tct cct agc gcc aag tac att gtc tct gtg 207
 Val Ala Cys Val Ala Phe Ser Pro Ser Ala Lys Tyr Ile Val Ser Val
 25 30 35 40
 ggc tac cag cat gac atg atc gtc aac gtg tgg gcc tgg aag aaa aac 255
 Gly Tyr Gln His Asp Met Ile Val Asn Val Trp Ala Trp Lys Lys Asn
 41 46 51 56
 att gtg gtg gcc tcc aac aag gtg tcc agt cgg gtg aca gca gtg tcc 303
 Ile Val Val Ala Ser Asn Lys Val Ser Ser Arg Val Thr Ala Val Ser
 57 62 67 72
 ttc tct gag gat tgc agc tac ttt gtc act gca ggc aac cga cac atc 351
 Phe Ser Glu Asp Cys Ser Tyr Phe Val Thr Ala Gly Asn Arg His Ile
 73 78 83 88
 aaa ttc tgg tat ctc gat gac agc aag acc tca aag gtg aat gcc act 399
 Lys Phe Trp Tyr Leu Asp Asp Ser Lys Thr Ser Lys Val Asn Ala Thr
 89 94 99 104

gtg ccc ttg ctg ggc cgc tca ggg ctg ctg gga gag cta cgg aac aac	447
Val Pro Leu Leu Gly Arg Ser Gly Leu Leu Gly Glu Leu Arg Asn Asn	
105 110 115 120	
cta ttc act gat gtg gcc tgt ggc aga gga aaa aag gcg gac agt acc	495
Leu Phe Thr Asp Val Ala Cys Gly Arg Gly Lys Lys Ala Asp Ser Thr	
121 126 131 136	
ttc tgc atc acg tcc tca ggg ctg ctg tgc gag ttc agt gat cga agg	543
Phe Cys Ile Thr Ser Ser Gly Leu Leu Cys Glu Phe Ser Asp Arg Arg	
137 142 147 152	
ctt ttg gac aag tgg gtg gag ctg agg gtc tac ccc gag gtg aag gat	591
Leu Leu Asp Lys Trp Val Glu Leu Arg Val Tyr Pro Glu Val Lys Asp	
153 158 163 168	
agt aac cag gcc tgc ctg ccc ccc agt tcc ttt att acc tgc tcc tca	639
Ser Asn Gln Ala Cys Leu Pro Pro Ser Ser Phe Ile Thr Cys Ser Ser	
169 174 179 184	
gac aac acc atc cgc ctg tgg aac aca gag agc tcc ggg gtg cat ggc	687
Asp Asn Thr Ile Arg Leu Trp Asn Thr Glu Ser Ser Gly Val His Gly	
185 190 195 200	
tcc acc ctc cac cga aac atc ctc agc agt gac ctc att aaa atc atc	735
Ser Thr Leu His Arg Asn Ile Leu Ser Ser Asp Leu Ile Lys Ile Ile	
201 206 211 216	
tat gtg gat ggg aac acc cag gcc ctg ctg gac aca gag ctg cct gga	783
Tyr Val Asp Gly Asn Thr Gln Ala Leu Leu Asp Thr Glu Leu Pro Gly	
217 222 227 232	
gga gac aaa gct gat gca tcc ctg ttg gat ccc cgc gtg ggc atc cgc	831
Gly Asp Lys Ala Asp Ala Ser Leu Leu Asp Pro Arg Val Gly Ile Arg	
233 238 243 248	
tcg gtg tgt gtc agc ccc aat gga cag cat cta gca tca ggg gac cgt	879
Ser Val Cys Val Ser Pro Asn Gly Gln His Leu Ala Ser Gly Asp Arg	
249 254 259 264	
atg ggc aca ctt agg gtg cac gaa ctt cag tcc ctg agt gag atg ctg	927
Met Gly Thr Leu Arg Val His Glu Leu Gln Ser Leu Ser Glu Met Leu	
265 270 275 280	
aag gtg gag gcc cat gac tct gag att ctg tgc ctg gag tat tct aag	975
Lys Val Glu Ala His Asp Ser Glu Ile Leu Cys Leu Glu Tyr Ser Lys	
281 286 291 296	
cca gac aca ggt ctg aaa ctg cta gca tcg gcg agc cgg gac cgg ctg	1023
Pro Asp Thr Gly Leu Lys Leu Leu Ala Ser Ala Ser Arg Asp Arg Leu	
297 302 307 312	
atc cat gtg ctg gat gcc ggg cgg gag tac agc cta cag cag acg ctg	1071
Ile His Val Leu Asp Ala Gly Arg Glu Tyr Ser Leu Gln Gln Thr Leu	
313 318 323 328	

gac	gaa	cac	tca	tcc	tcc	atc	act	gct	gtc	aag	ttt	gca	gcc	agt	gat	1119
Asp	Glu	His	Ser	Ser	Ser	Ile	Thr	Ala	Val	Lys	Phe	Ala	Ala	Ser	Asp	
329					334					339					344	
ggg	caa	gtc	cgc	atg	atc	agc	tgt	gga	gca	gac	aag	agc	atc	tac	ttc	1167
Gly	Gln	Val	Arg	Met	Ile	Ser	Cys	Gly	Ala	Asp	Lys	Ser	Ile	Tyr	Phe	
345					350					355					360	
cgc	act	gcg	cag	aag	tct	gga	gat	gga	gtg	cag	ttc	aca	cgg	aca	cac	1215
Arg	Thr	Ala	Gln	Lys	Ser	Gly	Asp	Gly	Val	Gln	Phe	Thr	Arg	Thr	His	
361					366					371					376	
cac	gtg	gtg	cgg	aag	acg	acc	ctc	tat	gac	atg	gat	gtg	gag	ccc	agc	1263
His	Val	Val	Arg	Lys	Thr	Thr	Leu	Tyr	Asp	Met	Asp	Val	Glu	Pro	Ser	
377					382					387					392	
tgg	aag	tac	acg	gct	atc	ggc	tgc	cag	gac	cga	aat	att	cgg	ata	ttt	1311
Trp	Lys	Tyr	Thr	Ala	Ile	Gly	Cys	Gln	Asp	Arg	Asn	Ile	Arg	Ile	Phe	
393					398					403					408	
aac	atc	agc	agt	gga	aag	cag	aag	aag	ctg	ttt	aaa	ggg	tca	cag	ggg	1359
Asn	Ile	Ser	Ser	Gly	Lys	Gln	Lys	Lys	Leu	Phe	Lys	Gly	Ser	Gln	Gly	
409					414					419					424	
gag	gac	ggc	aca	ctc	att	aag	gtg	cag	aca	gac	ccc	tca	ggg	atc	tac	1407
Glu	Asp	Gly	Thr	Leu	Ile	Lys	Val	Gln	Thr	Asp	Pro	Ser	Gly	Ile	Tyr	
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att	gcc	acc	agc	tgt	tct	gac	aag	aat	ctc	tcc	att	ttt	gac	ttc	tcc	1455
Ile	Ala	Thr	Ser	Cys	Ser	Asp	Lys	Asn	Leu	Ser	Ile	Phe	Asp	Phe	Ser	
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Ser	Gly	Glu	Cys	Val	Ala	Thr	Met	Phe	Gly	His	Ser	Glu	Ile	Val	Thr	
457					462					467					472	
ggc	atg	aaa	ttt	agt	aat	gat	tgt	aaa	cat	ctc	atc	tct	gtg	tct	ggg	1551
Gly	Met	Lys	Phe	Ser	Asn	Asp	Cys	Lys	His	Leu	Ile	Ser	Val	Ser	Gly	
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Asp	Ser	Cys	Ile	Phe	Val	Trp	Arg	Leu	Ser	Ser	Glu	Met	Thr	Ile	Ser	
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Met	Arg	Gln	Arg	Leu	Ala	Glu	Leu	Arg	Gln	Arg	Gln	Arg	Gly	Gly	Lys	
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Gln	Gln	Gly	Pro	Ser	Ser	Pro	Gln	Arg	Ala	Ser	Gly	Pro	Asn	Arg	His	
521					526					531					536	
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Gln	Ala	Pro	Ser	Met	Leu	Ser	Pro	Gly	Pro	Ala	Leu	Ser	Ser	Asp	Ser	
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gac	aag	gag	gga	gaa	gat	gag	ggg	act	gaa	gaa	gaa	ctt	cca	gca	ctg	1791

Asp Lys Glu Gly Glu Asp Glu Gly Thr Glu Glu Glu Leu Pro Ala Leu	553	558	563	568	
ccc gtc ctt gcc aag agt acc aag aag gca ctg gcc tcg gtc ccc agc	1839				
Pro Val Leu Ala Lys Ser Thr Lys Lys Ala Leu Ala Ser Val Pro Ser	569	574	579	584	
cca gct ttg ccc cga agc ctg tcc cac tgg gag atg agt cgg gca cag	1887				
Pro Ala Leu Pro Arg Ser Leu Ser His Trp Glu Met Ser Arg Ala Gln	585	590	595	600	
gag tcc gtg ggg ttc ctg gac cca gct cct gca gcc aac cca gga ccc	1935				
Glu Ser Val Gly Phe Leu Asp Pro Ala Pro Ala Ala Asn Pro Gly Pro	601	606	611	616	
aga aga aga ggg cgc tgg gtt cag cca ggt gtg gaa ctg agc gtt aga	1983				
Arg Arg Arg Gly Arg Trp Val Gln Pro Gly Val Glu Leu Ser Val Arg	617	622	627	632	
tcc atg ctg gat ctg cgg cag ctg gaa aca ctg gcc cca agc ctg cag	2031				
Ser Met Leu Asp Leu Arg Gln Leu Glu Thr Leu Ala Pro Ser Leu Gln	633	638	643	648	
gac cct agc cag gac tcg ctg gcc atc atc cca tct ggt ccc agg aag	2079				
Asp Pro Ser Gln Asp Ser Leu Ala Ile Ile Pro Ser Gly Pro Arg Lys	649	654	659	664	
cat ggg cag gag gcc ctt gag act tca ctc act agc cag aat gaa aag	2127				
His Gly Gln Glu Ala Leu Glu Thr Ser Leu Thr Ser Gln Asn Glu Lys	665	670	675	680	
ccc cct cgg cct cag gct tcc caa cct tgt tcc tat ccc cat att atc	2175				
Pro Pro Arg Pro Gln Ala Ser Gln Pro Cys Ser Tyr Pro His Ile Ile	681	686	691	696	
cga tta ttg tca caa gag gaa ggg gtc ttt gcc caa gat ctg gaa cct	2223				
Arg Leu Leu Ser Gln Glu Glu Gly Val Phe Ala Gln Asp Leu Glu Pro	697	702	707	712	
gca ccc att gaa gat ggt att gtc tac ccg gag ccg agt gac aac ccc	2271				
Ala Pro Ile Glu Asp Gly Ile Val Tyr Pro Glu Pro Ser Asp Asn Pro	713	718	723	728	
acc atg gat acc agt gag ttc caa gtg cag gct cca gcc cgg gga act	2319				
Thr Met Asp Thr Ser Glu Phe Gln Val Gln Ala Pro Ala Arg Gly Thr	729	734	739	744	
ctg gga aga gtg tac cca ggc agc agg agc tca gaa aag cac agc cct	2367				
Leu Gly Arg Val Tyr Pro Gly Ser Arg Ser Ser Glu Lys His Ser Pro	745	750	755	760	
gac agt gcc tgc tct gtg gat tac agc agc agc tgc ctt tcc agc ccg	2415				
Asp Ser Ala Cys Ser Val Asp Tyr Ser Ser Ser Cys Leu Ser Ser Pro	761	766	771	776	
gag cac ccc act gaa gac tct gag agc acg gag ccc ctc agt gtg gat	2463				
Glu His Pro Thr Glu Asp Ser Glu Ser Thr Glu Pro Leu Ser Val Asp					

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Gly Ile Ser Ser Asp	Leu Glu Glu Pro Ala	Glu Gly Asp Glu Glu Glu		
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gaa gaa gag gag gga	ggc atg ggc ccc tat	ggg cta cag gag ggc agc		2559
Glu Glu Glu Glu Gly	Gly Met Gly Pro Tyr	Gly Leu Gln Glu Gly Ser		
809	814	819	824	
ccc cag act cca gac	cag gag cag ttt cta	aaa cag cac ttt gag act		2607
Pro Gln Thr Pro Asp	Gln Glu Gln Phe Leu	Lys Gln His Phe Glu Thr		
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ctg gcc agt gga gct	gct cca ggg gcc cca	gtg cag gtc cca gag agg		2655
Leu Ala Ser Gly Ala	Ala Pro Gly Ala Pro	Val Gln Val Pro Glu Arg		
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Ser Glu Ser Arg Ser	Ile Ser Ser Arg Phe	Leu Leu Gln Val Gln Thr		
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cgc cca ctc agg gaa	cca tcc cca tcc tcc	tca agc ctg gca ctg atg		2751
Arg Pro Leu Arg Glu	Pro Ser Pro Ser Ser	Ser Ser Leu Ala Leu Met		
873	878	883	888	
tcg aga cca gcc cag	gtg cca cag gca tct	ggg gag cag ccg aga ggc		2799
Ser Arg Pro Ala Gln	Val Pro Gln Ala Ser	Gly Glu Gln Pro Arg Gly		
889	894	899	904	
aat ggt gcc aat ccc	cct gga gca ccc ccg	gag gtg gaa ccg tcc tct		2847
Asn Gly Ala Asn Pro	Pro Gly Ala Pro Pro	Glu Val Glu Pro Ser Ser		
905	910	915	920	
ggc aac ccc agc ccc	cag cag gca gcc tct	gtg ctg ttg cca cga tgc		2895
Gly Asn Pro Ser Pro	Gln Gln Ala Ala Ser	Val Leu Leu Pro Arg Cys		
921	926	931	936	
cgt ctc aac cct gac	agc agc tgg gct ccc	aag aga gtg gcc aca gcc		2943
Arg Leu Asn Pro Asp	Ser Ser Trp Ala Pro	Lys Arg Val Ala Thr Ala		
937	942	947	952	
agc ccc ttt tct gga	ctc cag aag gcc cag	tct gtg cac agt ctg gtg		2991
Ser Pro Phe Ser Gly	Leu Gln Lys Ala Gln	Ser Val His Ser Leu Val		
953	958	963	968	
cca cag gaa aga cat	gag gcc agt ctg cag	gcc cct tca cca ggc gca		3039
Pro Gln Glu Arg His	Glu Ala Ser Leu Gln	Ala Pro Ser Pro Gly Ala		
969	974	979	984	
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Leu Leu Ser Arg Glu	Ile Glu Ala Gln Asp	Gly Leu Gly Ser Leu Pro		
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Pro Ala Asp Gly Pro	Pro Ser Arg Pro His	Ser Tyr Gln Asn Pro Thr		
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Thr Ser Ser Met Ala Lys Ile Ser Arg Ser Ile Ser Val Gly Glu Asn	
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Ile Pro Lys Pro Leu Pro Asp Arg Pro Thr Leu Ala Ala Phe Ser Pro	
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Val Thr Lys Gly Arg Ala Pro Gly Glu Ala Glu Lys Pro Gly Phe Pro	
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Gly Pro Ser Ser Pro Cys Ala Gln Gln Leu Pro Val Ser Ser Leu Phe	
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Gln Gly Pro Glu Asn Leu Gln Pro Pro Pro Glu Lys Thr Pro Asn	
1145 1150 1155 1160	
ccc atg gaa tgc acc aag cca ggg gca gcc ctg agc cag gac tca gag	3615
Pro Met Glu Cys Thr Lys Pro Gly Ala Ala Leu Ser Gln Asp Ser Glu	
1161 1166 1171 1176	
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Pro Ala Val Ser Leu Glu Gln Cys Glu Gln Leu Val Ala Glu Leu Arg	
1177 1182 1187 1192	
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Gly Ser Val Arg Gln Ala Val Arg Leu Tyr His Ser Val Ala Gly Cys	
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Lys Met Pro Ser Ala Glu Gln Ser Arg Ile Ala Gln Leu Leu Arg Asp	
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Thr Phe Ser Ser Val Arg Gln Glu Leu Glu Ala Val Ala Gly Ala Val	
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 caacagggcc actgccgga tacttttctg ctgtgagaat gtaag atg gat oca 174
 Met Asp Pro
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 gaa gag cag gag ctc tta aat gat tac aga tac aga agc tac tct tca 222
 Glu Glu Gln Glu Leu Leu Asn Asp Tyr Arg Tyr Arg Ser Tyr Ser Ser
 4 9 14 19
 gtg att gaa aag gct ttg aga aat ttt gag tcc tcg agt gaa tgg gcg 270
 Val Ile Glu Lys Ala Leu Arg Asn Phe Glu Ser Ser Ser Glu Trp Ala
 20 25 30 35
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 Asp Leu Ile Ser Ser Leu Gly Lys Leu Asn Lys Ala Leu Gln Ser Asn
 36 41 46 51
 ctg agg tac tcc ttg ttg cca aga cgg ctc ctc atc agc aaa aga tta 366
 Leu Arg Tyr Ser Leu Leu Pro Arg Arg Leu Leu Ile Ser Lys Arg Leu
 52 57 62 67
 gct cag tgt ttg cac cct gcc ctg ccc agt ggt gtc cac tta aaa gct 414
 Ala Gln Cys Leu His Pro Ala Leu Pro Ser Gly Val His Leu Lys Ala
 68 73 78 83

ctg gaa acc tac gag att atc ttt aaa atc gtg ggg acc aaa tgg ctg	462
Leu Glu Thr Tyr Glu Ile Ile Phe Lys Ile Val Gly Thr Lys Trp Leu	
84 89 94 99	
gcc aag gac ttg ttt ctg tac agc tgc ggg tta ttt cct ctc ctg gca	510
Ala Lys Asp Leu Phe Leu Tyr Ser Cys Gly Leu Phe Pro Leu Leu Ala	
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cac gcg gcg gtg tgc gtg agg ccg gtg ctg ctc acc ctg tac gag aag	558
His Ala Ala Val Ser Val Arg Pro Val Leu Leu Thr Leu Tyr Glu Lys	
116 121 126 131	
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Tyr Phe Leu Pro Leu Gln Lys Leu Leu Leu Pro Ser Leu Gln Ala Phe	
132 137 142 147	
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Ile Val Gly Leu Leu Pro Gly Leu Glu Glu Gly Ser Glu Ile Ser Asp	
148 153 158 163	
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Arg Thr Asp Ala Leu Leu Leu Arg Leu Ser Leu Val Val Gly Lys Glu	
164 169 174 179	
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Val Phe Tyr Thr Ala Leu Trp Gly Ser Val Leu Ala Ser Pro Ser Ile	
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Arg Leu Pro Ala Ser Val Phe Val Val Gly His Ile Asn Arg Asp Ala	
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Val Lys Ser Leu Arg Ala Ser Leu Leu Asp Ser Asn Val Leu Val Gln	
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260 265 270 275	
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Arg Ile Leu Ser Ala Ala Thr Gln Thr Leu Leu Arg Arg Asp Met Ser	
276 281 286 291	
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Ser Ser Tyr Phe Phe Glu Lys Tyr Ser Lys Asp Leu Leu Val Glu Gly	
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Asp Lys Pro Glu Ile Gly Pro Gln Val Val Gly Asn Leu Phe Leu Glu	
372 377 382 387	
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Val Ile Arg Ala Phe Tyr Ser Tyr Cys Arg Asp Ala Leu Gly Ser Asp	
388 393 398 403	
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Leu Lys Leu Ser Tyr Thr Gln Ser Gly Asn Ser Leu Ile Ser Ala Ile	
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Lys Glu Asn Arg Asn Ala Ser Glu Ile Val Lys Thr Val Asn Leu Leu	
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Ile Thr Ser Leu Ser Thr Asp Phe Leu Trp Asp Tyr Met Thr Arg Cys	
436 441 446 451	
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Phe Glu Glu Cys Phe Arg Pro Val Lys Gln Arg Tyr Ser Val Arg Asn	
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Ser Val Ser Pro Pro Pro Thr Val Ser Glu Leu Cys Ala Leu Leu Val	
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Asp Met Glu Ala Leu Ser Leu Pro Glu Leu Thr His Ala Leu Lys Thr	
516 521 526 531	
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Cys	Phe	Lys	Val	Leu	Ser	Lys	Val	Gln	Met	Pro	Pro	Ser	Tyr	Leu	Asp	
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Thr	Glu	Ser	Thr	Ser	Gly	Thr	Ser	Ser	Pro	Val	Lys	Gly	Glu	Asn	Gly	
548					553					558					563	
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Lys	Ile	Ile	Leu	Glu	Thr	Lys	Ala	Val	Ile	Pro	Gly	Asp	Glu	Asp	Ala	
564					569					574					579	
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tcg	tca	ccg	gag	ctc	tct	gag	cac	ttg	agg	gtt	cct	cga	gtt	tct	ctg	1998
Ser	Ser	Pro	Glu	Leu	Ser	Glu	His	Leu	Arg	Val	Pro	Arg	Val	Ser	Leu	
596					601					606					611	
gaa	agg	gac	gac	gtt	tgg	aag	aag	ggc	ggg	agc	atg	cag	agg	acg	ttt	2046
Glu	Arg	Asp	Asp	Val	Trp	Lys	Lys	Gly	Gly	Ser	Met	Gln	Arg	Thr	Phe	
612					617					622					627	
ctt	tgc	atc	caa	gag	cta	atc	gcc	aac	ttt	gcc	agc	aag	aac	att	ttt	2094
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644					649					654					659	
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Ala	Gly	Lys	Arg	Asp	Arg	Asp	Gly	Thr	Gln	Ser	Leu	Ala	Ala	Asn	Asp	
660					665					670					675	
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Ser	Ser	Arg	Lys	Asn	Ser	Trp	Glu	Pro	Lys	Pro	Ile	Thr	Val	Pro	Gln	
676					681					686					691	
ttc	aag	cag	atg	ctg	tca	gac	ttg	ttc	aca	gca	cga	ggg	tct	cca	ttc	2286
Phe	Lys	Gln	Met	Leu	Ser	Asp	Leu	Phe	Thr	Ala	Arg	Gly	Ser	Pro	Phe	
692					697					702					707	
aag	aca	aaa	agt	tca	gag	tca	cca	tcg	tct	tcg	ccc	agc	agc	cct	gcc	2334
Lys	Thr	Lys	Ser	Ser	Glu	Ser	Pro	Ser	Ser	Ser	Pro	Ser	Ser	Pro	Ala	
708					713					718					723	
agg	aaa	aac	ggg	gga	gaa	tgg	gat	gtt	gag	aag	gtg	gtc	att	gac	ctg	2382
Arg	Lys	Asn	Gly	Gly	Glu	Trp	Asp	Val	Glu	Lys	Val	Val	Ile	Asp	Leu	
724					729					734					739	
ggg	ggg	tcc	agg	gag	gaa	cgc	agg	gag	gcc	ttt	gcc	gcc	gcc	tgc	cac	2430
Gly	Gly	Ser	Arg	Glu	Glu	Arg	Arg	Glu	Ala	Phe	Ala	Ala	Ala	Cys	His	
740					745					750					755	
ctg	ctg	ctg	gat	tgt	gcc	act	ttc	cct	gtc	tac	ctg	tcc	gag	gaa	gag	2478
Leu	Leu	Leu	Asp	Cys	Ala	Thr	Phe	Pro	Val	Tyr	Leu	Ser	Glu	Glu	Glu	

756	761	766	771	
acc gag cag ctc tgt	gca acg ctc ttc	cag ctg cca gga gcc ggt gat		2526
Thr Glu Gln Leu Cys	Ala Thr Leu Phe Gln	Leu Pro Gly Ala Gly Asp		
772	777	782	787	
tcc agt ttt cca tct	tgg ctg aag tcc ctc	atg act att tgc tgc tgt		2574
Ser Ser Phe Pro Ser	Trp Leu Lys Ser Leu	Met Thr Ile Cys Cys		
788	793	798	803	
gtg act gac tgc tac	ctc cag aac gtg gcc	att tcc act ctg ctg gaa		2622
Val Thr Asp Cys Tyr	Leu Gln Asn Val Ala	Ile Ser Thr Leu Leu Glu		
804	809	814	819	
gtg ata aac cat tcc	cag tcc ctg gcg ctt	gtc att gaa gac aag atg		2670
Val Ile Asn His Ser	Gln Ser Leu Ala Leu	Val Ile Glu Asp Lys Met		
820	825	830	835	
aaa cgc tat aag agc	tct gga cac aac cct	ttt ttt ggc aag ctg cag		2718
Lys Arg Tyr Lys Ser	Ser Gly His Asn Pro	Phe Phe Gly Lys Leu Gln		
836	841	846	851	
atg gtg acg gtt cct	ccc att gct cca ggg	ata ttg aaa gtc att gca		2766
Met Val Thr Val Pro	Pro Ile Ala Pro Gly	Ile Leu Lys Val Ile Ala		
852	857	862	867	
gag aaa aca gat ttc	tat cag agg gtg gct	cgc gtg ctt tgg aat cag		2814
Glu Lys Thr Asp Phe	Tyr Gln Arg Val Ala	Arg Val Leu Trp Asn Gln		
868	873	878	883	
ctg aac aaa gag acc	cgg gag cat cac gtc	acc tgc gta gaa ttg ttc		2862
Leu Asn Lys Glu Thr	Arg Glu His His Val	Thr Cys Val Glu Leu Phe		
884	889	894	899	
tac cgg ctg cac tgc	ctg gcc cct acg gcc	aac atc tgc gag gac atc		2910
Tyr Arg Leu His Cys	Leu Ala Pro Thr Ala	Asn Ile Cys Glu Asp Ile		
900	905	910	915	
atc tgc cat gcc ctc	ctg gac cct gac aag	gga aca agg ctg gaa gct		2958
Ile Cys His Ala Leu	Leu Asp Pro Asp Lys	Gly Thr Arg Leu Glu Ala		
916	921	926	931	
ctg ttt aga ttt tcc	gtg atc tgg cat ctg	aca aga gag atc caa ggc		3006
Leu Phe Arg Phe Ser	Val Ile Trp His Leu	Thr Arg Glu Ile Gln Gly		
932	937	942	947	
agt cga gta aca tct	cac aat cgc tcc ttt	gat agg tcc ttg ttt gtc		3054
Ser Arg Val Thr Ser	His Asn Arg Ser Phe	Asp Arg Ser Leu Phe Val		
948	953	958	963	
gtg ctg gac agc ctg	gcc tgc acg gat ggt	gcc atc ggt gcg gca gcc		3102
Val Leu Asp Ser Leu	Ala Cys Thr Asp Gly	Ala Ile Gly Ala Ala Ala		
964	969	974	979	
cag ggc tgg ctg gtg	cgt gcg ctc tcc ctc	ggg gac gtg gct cgc atc		3150
Gln Gly Trp Leu Val	Arg Ala Leu Ser Leu	Gly Asp Val Ala Arg Ile		
980	985	990	995	

ctc gaa ccc gtg ctc ctg ctg ctg cag cca aaa acc cag aga acc	3198
Leu Glu Pro Val Leu Leu Leu Leu Leu Gln Pro Lys Thr Gln Arg Thr	
996 1001 1006 1011	
tcc atc cac tgc ctc aag cag gag aac tcg gcc gat gac ttg cac cgt	3246
Ser Ile His Cys Leu Lys Gln Glu Asn Ser Ala Asp Asp Leu His Arg	
1012 1017 1022 1027	
tgg ttt aac agg aag aaa acc tct ttc aga gag gca tgc gca gtg ccc	3294
Trp Phe Asn Arg Lys Lys Thr Ser Phe Arg Glu Ala Cys Ala Val Pro	
1028 1033 1038 1043	
gag cct cag gag agc ggc tct gaa gag cac ctg cct ctg agc cag ttc	3342
Glu Pro Gln Glu Ser Gly Ser Glu Glu His Leu Pro Leu Ser Gln Phe	
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acc aca gtg gac cgt gaa gcc att tgg gcc gaa gtg gag aag gag ccc	3390
Thr Thr Val Asp Arg Glu Ala Ile Trp Ala Glu Val Glu Lys Glu Pro	
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Glu Lys Tyr Pro Leu Arg Gly Glu Leu Ser Glu Glu Glu Leu Pro Tyr	
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tac gtg gag ctt cca gac agg acg gcc cac ggc gcc ccg gac agc agc	3486
Tyr Val Glu Leu Pro Asp Arg Thr Ala His Gly Ala Pro Asp Ser Ser	
1092 1097 1102 1107	
gag cac acc gag tct gca gat aca agc tcc ggc cac acg gac agc gag	3534
Glu His Thr Glu Ser Ala Asp Thr Ser Ser Gly His Thr Asp Ser Glu	
1108 1113 1118 1123	
aac acg tcc tcc ttc tcc tcc cct tcc cac gac ctg cag gag ctg agc	3582
Asn Thr Ser Ser Phe Ser Ser Pro Ser His Asp Leu Gln Glu Leu Ser	
1124 1129 1134 1139	
aac gaa gag aac tgc tgt gca ccc atc cac atg ggg ggc agg gcg tac	3630
Asn Glu Glu Asn Cys Cys Ala Pro Ile His Met Gly Gly Arg Ala Tyr	
1140 1145 1150 1155	
ccc aag cgc tcg gcc ctg ctg gcg gcc ttc cag tca gaa agc ttc aag	3678
Pro Lys Arg Ser Ala Leu Leu Ala Ala Phe Gln Ser Glu Ser Phe Lys	
1156 1161 1166 1171	
gct ggg gcc aag tta agc ctg gtg cgg gtg gac tcg gac aag acg cag	3726
Ala Gly Ala Lys Leu Ser Leu Val Arg Val Asp Ser Asp Lys Thr Gln	
1172 1177 1182 1187	
gct tct gag tcg ttc tcc agc gac gag gag gcg gac ttg gag ctc cag	3774
Ala Ser Glu Ser Phe Ser Ser Asp Glu Glu Ala Asp Leu Glu Leu Gln	
1188 1193 1198 1203	
gcc ctc acc aca tcc agg ctg cta aag cag cag cgg gaa agg cag gag	3822
Ala Leu Thr Thr Ser Arg Leu Leu Lys Gln Gln Arg Glu Arg Gln Glu	
1204 1209 1214 1219	

gcc gtc gag gcc ttg ttc aag cac atc ctg ctc tac ctg cag ccc tac	3870
Ala Val Glu Ala Leu Phe Lys His Ile Leu Leu Tyr Leu Gln Pro Tyr	
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gac tct cgg cgg gtc ctc tat gcc ttc tgc gtg ctg gag gct gtg ctc	3918
Asp Ser Arg Arg Val Leu Tyr Ala Phe Ser Val Leu Glu Ala Val Leu	
1236 1241 1246 1251	
aaa acc aac cct aag gaa ttc atc gag gct gtg tcc agg act agc atg	3966
Lys Thr Asn Pro Lys Glu Phe Ile Glu Ala Val Ser Arg Thr Ser Met	
1252 1257 1262 1267	
gat acc agc tcc acc gcg cac ctc aac ctc atc tcc aac ctc ctc gct	4014
Asp Thr Ser Ser Thr Ala His Leu Asn Leu Ile Ser Asn Leu Leu Ala	
1268 1273 1278 1283	
cgc cac cag gag gcc ctc att ggc cag agt ttc tac gga aag ctc cag	4062
Arg His Gln Glu Ala Leu Ile Gly Gln Ser Phe Tyr Gly Lys Leu Gln	
1284 1289 1294 1299	
acc cag gtc ccc aac gtg tgc ccc cac tct ctg ctc ctg gag ctg ctc	4110
Thr Gln Val Pro Asn Val Cys Pro His Ser Leu Leu Leu Glu Leu Leu	
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acc tac ctc tgc ctg agc ttc ctg cgc tcc tac tac cct tgc tat ttg	4158
Thr Tyr Leu Cys Leu Ser Phe Leu Arg Ser Tyr Tyr Pro Cys Tyr Leu	
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aag gtc tgc cac cga gac att ctc ggc aac cgg gac gtg cag gtc aaa	4206
Lys Val Ser His Arg Asp Ile Leu Gly Asn Arg Asp Val Gln Val Lys	
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agt gtc gag gtt ttg atc agg ata atg atg cag ctg gtc tca gtg gcc	4254
Ser Val Glu Val Leu Ile Arg Ile Met Met Gln Leu Val Ser Val Ala	
1348 1353 1358 1363	
aag tct tgc gaa ggg aag aac gtg gag ttc atc cac agc ttg ctg cag	4302
Lys Ser Ser Glu Gly Lys Asn Val Glu Phe Ile His Ser Leu Leu Gln	
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Arg Cys Lys Val Gln Glu Phe Val Leu Leu Ser Leu Ser Ala Ser Met	
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tac acg agc cag aag cgc tac ggg ctg gcc acc gcc cac cac ggc agg	4398
Tyr Thr Ser Gln Lys Arg Tyr Gly Leu Ala Thr Ala His His Gly Arg	
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gcc ctg cca gag gac agc ctc ttt gag gag agt ctc att aac ttg ggt	4446
Ala Leu Pro Glu Asp Ser Leu Phe Glu Glu Ser Leu Ile Asn Leu Gly	
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cag gac cag atc tgg agt gag cac ccg ctg cag att gag ctg ctg aag	4494
Gln Asp Gln Ile Trp Ser Glu His Pro Leu Gln Ile Glu Leu Leu Lys	
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ctg ctg cag gtg ctg att gtc ttg gaa cac cac ctg ggt cgg gcc cat	4542

Leu Leu Gln Val	Leu Ile Val	Leu Glu His His	Leu Gly Arg Ala His	
1444	1449	1454	1459	
gag gag gcg gaa aac cag	ccc gac ctg tcc cgg	gag tgg cag aga gcc	4590	
Glu Glu Ala Glu Asn Gln	Pro Asp Leu Ser Arg	Glu Trp Gln Arg Ala		
1460	1465	1470	1475	
ctg aac ttc cag cag gcc	atc agc gcc ctg cag	tac gtg cag ccc cac	4638	
Leu Asn Phe Gln Gln Ala	Ile Ser Ala Leu Gln Tyr	Val Gln Pro His		
1476	1481	1486	1491	
ccc ctc acc tcc cag ggt	ctt ctg gtc tct gcg	gtg gtg agg ggt ctg	4686	
Pro Leu Thr Ser Gln Gly	Leu Leu Val Ser Ala	Val Val Arg Gly Leu		
1492	1497	1502	1507	
cag ccc gcc tac ggt tac	ggc atg cat ccg gcc	tgg gtg agc ttg gtc	4734	
Gln Pro Ala Tyr Gly Tyr	Gly Met His Pro Ala	Trp Val Ser Leu Val		
1508	1513	1518	1523	
acg cat tcc ttg ccc tac	ttc gga aag tcc ctg	ggc tgg acg gtg aca	4782	
Thr His Ser Leu Pro Tyr	Phe Gly Lys Ser Leu	Gly Trp Thr Val Thr		
1524	1529	1534	1539	
ccc ttt gtt gtc cag att	tgc aaa aac ttg gat	gac ttg gtc aag cag	4830	
Pro Phe Val Val Gln Ile	Cys Lys Asn Leu Asp	Asp Leu Val Lys Gln		
1540	1545	1550	1555	
tat gaa agc gaa tct gtg	aag ctc tct gtc agc	aca acc tcc aag agg	4878	
Tyr Glu Ser Glu Ser Val	Lys Leu Ser Val Ser	Thr Thr Ser Lys Arg		
1556	1561	1566	1571	
gaa aac att tct cca gat	tat cca ctc acc ctt	cta gaa ggt cta acg	4926	
Glu Asn Ile Ser Pro Asp	Tyr Pro Leu Thr Leu	Glu Gly Leu Thr		
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acc att agt cat ttt tgt	ctt ttg gaa caa gcc	aac caa aac aaa aag	4974	
Thr Ile Ser His Phe Cys	Leu Leu Glu Gln Ala	Asn Gln Asn Lys Lys		
1588	1593	1598	1603	
acc atg gct gca ggt gat	cct gcc aac ttg agg	aat gcc aga aat gcc	5022	
Thr Met Ala Ala Gly Asp	Pro Ala Asn Leu Arg	Asn Ala Arg Asn Ala		
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att ttg gaa gag ctg cct	cga act gtt aac acc	atg gcc ctt ctc tgg	5070	
Ile Leu Glu Glu Leu Pro	Arg Thr Val Asn Thr	Met Ala Leu Leu Trp		
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aat gtt ctc gga aag gag	gag act caa aag aga	cct gtc gat ctc cta	5118	
Asn Val Leu Gly Lys Glu	Glu Thr Gln Lys Arg	Pro Val Asp Leu Leu		
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ggg gcc gcg aag gga tcc	tct tcc gtt tac ttt	aaa acc acc aaa acc	5166	
Gly Ala Ala Lys Gly Ser	Ser Ser Val Tyr Phe	Lys Thr Thr Lys Thr		
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ata aga caa aaa att tta	gac ttc tta aac ccc	ttg acg gcc cat ctt	5214	
Ile Arg Gln Lys Ile Leu	Asp Phe Leu Asn Pro	Leu Thr Ala His Leu		

1668	1673	1678	1683	
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Gly Val Gln Leu Thr Ala Ala Val Ala Ala Val Trp Ser Arg Lys Lys				
1684	1689	1694	1699	
gcc cag cgt cac agt aag atg aag att atc cca acg gca agt gca tcc				5310
Ala Gln Arg His Ser Lys Met Lys Ile Ile Pro Thr Ala Ser Ala Ser				
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cag cta acc ctt gtc gac ttg gtg tgt gca ctc agc acc ctg cag act				5358
Gln Leu Thr Leu Val Asp Leu Val Cys Ala Leu Ser Thr Leu Gln Thr				
1716	1721	1726	1731	
gac acg ctg ctg cac ctg gtg aag gag gtg gtg aag agg cca ccc caa				5406
Asp Thr Leu Leu His Leu Val Lys Glu Val Val Lys Arg Pro Pro Gln				
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gtc aaa ggg ggt gat gag aaa tcg ccc cta gtg gac att cct gtg ttg				5454
Val Lys Gly Gly Asp Glu Lys Ser Pro Leu Val Asp Ile Pro Val Leu				
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Gln Phe Cys Tyr Ala Phe Leu Gln Arg Leu Pro Val Pro Ala Leu Gln				
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Glu Asn Phe Ser Ser Leu Leu Gly Val Leu Lys Glu Ser Val Gln Leu				
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aat cta gcc cca cct ggg tat ttt ctg ctt ctc agc atg ctg aat gac				5598
Asn Leu Ala Pro Pro Gly Tyr Phe Leu Leu Leu Ser Met Leu Asn Asp				
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ttt gta aca aga act ccc aac ctg gaa aac aag aag gac caa aaa gac				5646
Phe Val Thr Arg Thr Pro Asn Leu Glu Asn Lys Lys Asp Gln Lys Asp				
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Leu Gln Glu Ile Thr Gln Lys Ile Leu Glu Ala Val Gly Asn Ile Ala				
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Gly Ser Ser Leu Glu Gln Thr Ser Trp Leu Ser Arg Asn Leu Glu Val				
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aag gcc caa cct cag gcc tct cta gaa gaa tct gat gct gag gag gac				5790
Lys Ala Gln Pro Gln Ala Ser Leu Glu Glu Ser Asp Ala Glu Glu Asp				
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Leu Tyr Asp Ala Ala Ala Ala Ser Ala Met Val Ser Ser Ser Ala Pro				
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Ser Val Tyr Ser Val Gln Ala Leu Ser Leu Leu Ala Glu Val Leu Ala				
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Ser Leu Leu Asp Met Val Tyr Arg Ser Asp Glu Lys Glu Lys Ala Val	
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Pro Leu Ile Ser Arg Leu Leu Tyr Tyr Val Phe Pro Tyr Leu Arg Asn	
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His Ser Ala Tyr Asn Ala Pro Ser Phe Arg Ala Gly Ala Gln Leu Leu	
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Ser Ser Leu Ser Gly Tyr Ala Tyr Thr Lys Arg Ala Trp Arg Lys Glu	
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Val Leu Glu Leu Phe Leu Asp Pro Ala Phe Phe Gln Met Asp Thr Ser	
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Cys Val His Trp Lys Ser Ile Ile Asp His Leu Leu Thr His Glu Lys	
1988 1993 1998 2003	
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Thr Met Phe Lys Asp Leu Met Asn Met Gln Ser Ser Ser Leu Lys Leu	
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Phe Ser Ser Phe Glu Gln Lys Ala Met Leu Leu Lys Arg Gln Ala Phe	
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Ile Gln Glu Arg Leu Thr Asp Asn Leu Arg Val Gly Gln Thr Ser Ile	
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Val Ala Ala Gln Met Phe Leu Phe Phe Arg Val Leu Leu Leu Arg Ile	
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Ser Pro Gln His Leu Thr Ser Leu Trp Pro Ile Met Val Ser Glu Leu	
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Met Pro Phe Phe Met Thr Leu Asn Gly Ala Phe Lys Thr Gln Arg Gln	
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 36 41 46 51
 gac atc cca gta gca gtt aca att ttc ttt ggg gcc aat gac agt gca 366
 Asp Ile Pro Val Ala Val Thr Ile Phe Phe Gly Ala Asn Asp Ser Ala
 52 57 62 67
 cta aaa gat gag aat ccc aag cag cac att ccc ctg gag gag tac gct 414
 Leu Lys Asp Glu Asn Pro Lys Gln His Ile Pro Leu Glu Glu Tyr Ala
 68 73 78 83

gcg aac cta aag agc atg gtg cag tac ctg aag tcc gtg gac atc cct	462
Ala Asn Leu Lys Ser Met Val Gln Tyr Leu Lys Ser Val Asp Ile Pro	
84 89 94 99	
gag aat cga gtc att ctc atc acg ccg acc cca ctt tgt gaa aca gcc	510
Glu Asn Arg Val Ile Leu Ile Thr Pro Thr Pro Leu Cys Glu Thr Ala	
100 105 110 115	
tgg gaa gaa cag tgc atc ata caa ggt tgc aaa cta aat cgc ctg aac	558
Trp Glu Glu Gln Cys Ile Ile Gln Gly Cys Lys Leu Asn Arg Leu Asn	
116 121 126 131	
tct gtt gtt ggt gaa tat gcc aat gcg tgt tta caa gtg gcc caa gac	606
Ser Val Val Gly Glu Tyr Ala Asn Ala Cys Leu Gln Val Ala Gln Asp	
132 137 142 147	
tgt ggg act gac gta ctt gac ctg tgg acc ctg atg cag gac agc cag	654
Cys Gly Thr Asp Val Leu Asp Leu Trp Thr Leu Met Gln Asp Ser Gln	
148 153 158 163	
gac ttc tca tct tat tta tca gat gga cta cat ttg tct cca aag ggg	702
Asp Phe Ser Ser Tyr Leu Ser Asp Gly Leu His Leu Ser Pro Lys Gly	
164 169 174 179	
aat gaa ttt ttg ttc tcg cat ctc tgg cct ttg ata gag aaa aag gtc	750
Asn Glu Phe Leu Phe Ser His Leu Trp Pro Leu Ile Glu Lys Lys Val	
180 185 190 195	
tct tct cta cct ttg ctg ctt cct tac tgg cgg gat gta gca gaa gca	798
Ser Ser Leu Pro Leu Leu Leu Pro Tyr Trp Arg Asp Val Ala Glu Ala	
196 201 206 211	
aaa cct gaa tta agt ctg ctg gga gat gga gac cat tag ccaatcacag	847
Lys Pro Glu Leu Ser Leu Leu Gly Asp Gly Asp His *	
212 217 222	
gagacccaaa tctgcttggt atctacagaa ctcaaagttg tcaatacgta gaggtacgct	907
tttttctca ggcttaaacc ttgtccactg atattaataa taaaagtatt agatgatttt	967
tcagggaagt ttatactta ggtccattgt gtttcgacag tatttattaa tgcagatatc	1027
agtgtctacag ctataaaata taccctgagc agcttggttaa ttctataaat gacaaagact	1087
atgttttttaa aaagtcacaa ttttataaaa atgggtttttc ttacattctt ttgagaactg	1147
tttcactcat acatacaccc acacacccca ctcaaccttg tatcaaattc caaaagtgtg	1207
actaaaggta taaggattat catgactagg ttaaaaggat aggcaaatac cataagggtg	1267
caagttccaa ggtattaggt ataacaaggt atctgggggtg accaaatgtc cttgggaatg	1327
gggggggtggg nggggtatat ggtaggtcc ccgggttggg ttaactgccc ntcaaattta	1387
caggtttaaa tgttttgggc cggtagagccc ctttccgttc ttgggggggg	1436

<210> 302
 <211> 1183
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (118) .. (252)
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 <221> misc_feature
 <222> (1) ... (1183)
 <223> n = a,t,c or g

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 agctgaaggt aagtacattt tccactaatt cctcagcttg ctaagtgctt ttggacc 117
 atg aat aga gca gct agg aac aaa tct gag aag agg tac tat tca gaa 165
 Met Asn Arg Ala Ala Arg Asn Lys Ser Glu Lys Arg Tyr Tyr Ser Glu
 1 5 10 15
 ttc ctc caa ata gct cat ctt ttt aat tat ggg ctt tca tcc ttc cta 213
 Phe Leu Gln Ile Ala His Leu Phe Asn Tyr Gly Leu Ser Ser Phe Leu
 17 22 27 32
 agg gag ttt att att ttt cta att aaa cta cta caa tga aggctattac 262
 Arg Glu Phe Ile Ile Phe Leu Ile Lys Leu Leu Gln *
 33 38 43
 ctttttgtct agctaaaaca atcttttcta ttaatgaatt tattggcttc tctagtactc 322
 ttcaaattgt cattgagctc tattcaagga ctacagccag ttttttcta atagaattag 382
 gggtgaaaca aatcatgctt ctattatcac ttctggagtt agcccttcac ctgatcagct 442
 tgtctaggtg taagagtgcg ggggttttag cgccacaaag acgtgggcat gggcagctt 502
 cctgaacctc aggcattggt gtetaagcaa ctccaccatc cacacgtgtg acgttacagt 562
 tctgggagat gcacgcacac tntctgtgcc tttctcaacc actagcttaa tcagcctcca 622
 ccttcctagg cagcaacacg ggggtgcagga taaacaataa ctaaaagcat actgattatc 682
 acatactcct gcaaagtgtt tgcacccaga aagcatgcag tcaactgccat catgaggggc 742
 tcacaccttt ctttggctgg ctctgtcggg gggcacatgt tacctataaa agaggcccaa 802
 gcattcgatt aaacagctct tctttataat tcagtttggc taagctgcct tcaaaaaact 862
 tgtccccaat tcttcactta cccccccca cttttacaca cgcataacc caacttacc 922
 gggcccactt ggaaacacta catacatagc atgcttgcca aaagttcaca tagggattag 982
 gattgcgaaa ggggtaccac aggtgggcca cagcgtcctg cgtctggacg taacacagtg 1042

aggacgggct gtcatgcttc tgtgatcctc gtcacgccac gcctacgaag cgagtgcgct 1102
gagacggctg gtacgctagg cattgggtcac catcgctacg acacgccata cagtgcgctt 1162
gccagcctct cgtgtcgcgc c 1183

<210> 303
<211> 1885
<212> DNA
<213> Homo sapiens

<220>
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<222> (1115) .. (1744)

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ccttaattct cccacggcaa agtccatttc tgaaggaaaa actacctcct tccaagggtc 60
tcttgcctacc ccactctctt tctctctctt ctttttcttc cttttcagag ctggctcctc 120
gatgactggc tgcctctacct tctttttgga cttcatcttt ttctttgcgg aggccttagg 180
gtcatcactt atggggatgt attccggagc ctcaactttg actggcttct ttttacttcc 240
tttcttaggg ctgctctcca tggacctgga gggtctggag tggcctggga gggcatctcc 300
ctctgggtgg attttttttt tcttcttcac ctctccattg tgttctctgg ggctcttccg 360
cttcggttct tgccccaagg ctgcctgttc ctcatcttc tctccactg agcaagtgtc 420
cccaacatcc ctggcctccc tggcctcaca gaaccaaggg tcttggaccg agaaggctgt 480
ggggtcctgg gccccctttt tttctctctt gtgttttttg agcttcttgc caactctggt 540
ttctctctca cctgtctag ggtctgggga ggttttcacc ccagaggcat gggacatggc 600
tagagggtgac ttcttatctt tcttttcccc actgaggaac tccaagtggc caaacacctg 660
cttctctgagg ctgggtgact tctctgtccg tctagcaggc agcgtggtct caggttctac 720
atgctctctg caaagggtgc tgacaccctt ctttttcttc ttctttttct tcaactagagg 780
catctcaggt gcctgcccat gggccacact cttagagggg gatgtagctc ttaaaggaga 840
aacatcagca aagtaatcat cattgtttta aactgagtat cgagtctctg gttctttgac 900
cactttcttc ttctttttct tctctgggag cccaagggtc actttgtgtg tcttgggtgat 960
cattccggtg ggcgaaattt ccccgctcc acgtgagagc cagctccgcc gtgaccggga 1020
agtccacttc gagtcgccgg cccacctct cgggttccgg cttcttccgg gtcgcggcct 1080
tccggcgaac gcggttaccg tggaaaccgc ggcc atg gcg gca ccg cgg caa 1132

Met Ala Ala Pro Arg Gln

1

atc	ccc	agc	cac	ata	gtg	cgc	ctc	aag	ccc	agc	tgc	tct	aca	gac	tgc	1180
Ile	Pro	Ser	His	Ile	Val	Arg	Leu	Lys	Pro	Ser	Cys	Ser	Thr	Asp	Ser	
7					12					17					22	
tgc	ttc	acc	cgg	acg	ccg	gtg	ccc	acc	gtg	tct	ctc	gcg	tcc	cgc	gag	1228
Ser	Phe	Thr	Arg	Thr	Pro	Val	Pro	Thr	Val	Ser	Leu	Ala	Ser	Arg	Glu	
23					28					33					38	
ctg	cct	gtc	tgc	tgc	tgg	cag	gtc	acc	gag	ccg	tca	agc	aag	aat	ctg	1276
Leu	Pro	Val	Ser	Ser	Trp	Gln	Val	Thr	Glu	Pro	Ser	Ser	Lys	Asn	Leu	
39					44					49					54	
tgg	gag	cag	atc	tgc	aag	gag	tat	gaa	gct	gag	cag	cct	ccc	ttt	cca	1324
Trp	Glu	Gln	Ile	Cys	Lys	Glu	Tyr	Glu	Ala	Glu	Gln	Pro	Pro	Phe	Pro	
55					60					65					70	
gaa	gga	tat	aaa	gtc	aaa	cag	gag	cct	gtg	att	acg	gtt	gcg	cca	gta	1372
Glu	Gly	Tyr	Lys	Val	Lys	Gln	Glu	Pro	Val	Ile	Thr	Val	Ala	Pro	Val	
71					76					81					86	
gag	gaa	atg	ctt	ttt	cat	ggc	ttc	agt	gca	gag	cac	tat	ttt	ccg	gtt	1420
Glu	Glu	Met	Leu	Phe	His	Gly	Phe	Ser	Ala	Glu	His	Tyr	Phe	Pro	Val	
87					92					97					102	
tcc	cat	ttc	acc	atg	atc	tca	cgt	aca	ccc	tgt	cct	caa	gat	aaa	tgc	1468
Ser	His	Phe	Thr	Met	Ile	Ser	Arg	Thr	Pro	Cys	Pro	Gln	Asp	Lys	Ser	
103					108					113					118	
gaa	aca	atc	aac	cca	aaa	aca	tgt	tct	ccc	aaa	gaa	tat	ttg	gaa	act	1516
Glu	Thr	Ile	Asn	Pro	Lys	Thr	Cys	Ser	Pro	Lys	Glu	Tyr	Leu	Glu	Thr	
119					124					129					134	
ttc	atc	ttt	cct	gtt	ctg	ctt	ccc	gga	atg	gct	agc	ctg	ctt	cac	caa	1564
Phe	Ile	Phe	Pro	Val	Leu	Leu	Pro	Gly	Met	Ala	Ser	Leu	Leu	His	Gln	
135					140					145					150	
gcg	aag	aaa	gaa	aaa	tgt	ttt	gag	gtt	cgc	tgt	gat	cct	gag	att	caa	1612
Ala	Lys	Lys	Glu	Lys	Cys	Phe	Glu	Val	Arg	Cys	Asp	Pro	Glu	Ile	Gln	
151					156					161					166	
gaa	ctg	cgt	cag	tgg	cag	aag	aaa	ctt	cgc	gag	gcc	aag	cac	att	cac	1660
Glu	Leu	Arg	Gln	Trp	Gln	Lys	Lys	Leu	Arg	Glu	Ala	Lys	His	Ile	His	
167					172					177					182	
cag	caa	gtc	aaa	att	ttc	tgg	gcc	aag	caa	gaa	caa	aaa	gtg	aaa	tgc	1708
Gln	Gln	Val	Lys	Ile	Phe	Trp	Ala	Lys	Gln	Glu	Gln	Lys	Val	Lys	Cys	
183					188					193					198	
aaa	atg	gag	gac	gat	cag	tac	ctg	cag	cca	aga	tga	aaat	tccatcatct			1758
Lys	Met	Glu	Asp	Asp	Gln	Tyr	Leu	Gln	Pro	Arg	*					
199					204					209						
taaccatagc	taagacgtat	ctttgccccat	tgcacacaag	ttaccttgtg	caaggaaaat											1818

gtccaaatga tgctctctct cttgtgattt cttaaacaag acttggaaca tgtgcaaaaa 1878
 aaaaaaa 1885

<210> 304
 <211> 635
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (115) .. (363)

<400> 304
 agggacttgc cccgtaattc ccgggacgac gatctcgtcc ggaacgggtg ccgggacgga 60
 tcaccgtacg gtccgatcgcg acccgaggag gcggaagagc ggcgccgtca ctcc atg 117
 Met
 1
 gat tcc ttt ggg caa ccc aga cca gaa gat aat cag tca gta gtc aga 165
 Asp Ser Phe Gly Gln Pro Arg Pro Glu Asp Asn Gln Ser Val Val Arg
 2 7 12 17
 aga atg caa aag aaa tac tgg aaa act aaa cag gtc ttt atc aaa gca 213
 Arg Met Gln Lys Lys Tyr Trp Lys Thr Lys Gln Val Phe Ile Lys Ala
 18 23 28 33
 aca gga aaa aaa gag gat gag cac ttg gtg gcg tct gat gct gaa ctg 261
 Thr Gly Lys Lys Glu Asp Glu His Leu Val Ala Ser Asp Ala Glu Leu
 34 39 44 49
 gat gct aaa ctt gag gtt ttt cac tct gtt caa gag aca tgc act gaa 309
 Asp Ala Lys Leu Glu Val Phe His Ser Val Gln Glu Thr Cys Thr Glu
 50 55 60 65
 ctt ctg aag ata atc gag aaa tac cag cta aga ctc aat ggt atg aaa 357
 Leu Leu Lys Ile Ile Glu Lys Tyr Gln Leu Arg Leu Asn Gly Met Lys
 66 71 76 81
 tca tag ttatctatct gataattccc atttaaaata aatattagca ttttttaaaa 413
 Ser *
 82
 tgaaagattt aatgtaaaaa caattttgtg aatagcttct tatggcaaaa tatgaatatt 473
 tacagctacc tggtctcaaa ggccccagta ttctctcttc tttctcagt taatcaaacc 533
 ctctgacca gatttatctt ttgctgatat tttttttctt tgagacaggg tctttctctg 593
 cactccagcc taggcaacag agcaagactc cgtctcaaaa aa 635

<210> 305
 <211> 2864
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (407)..(2746)

<400> 305
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 atgtgcagat caagtccaga agcgccgggg ttctctgaag cagttttcag gacttaaggc 120
 tctgggacat ccagcacagt gagcggcccc tgggcaccac cagaaaacat ttgtgggtga 180
 acgtggagtg atgaccatgt ggacactgtc tttccagggt ttcttgagac ctctgcagag 240
 tctggggggc aggtcttctta gtggaaactg caggatcttc cttctgaccc ctgcttgccct 300
 cgccccagca gctccggttg agtccacaga tgccagctca gcttccagct tggggaagag 360
 tggggttgtc agcaggagag cctgagggtt gaggcccagc gtgaac atg gca gct 415
 Met Ala Ala
 1
 aat ggg gac tct ccc cca tgg tcc ccg gcc ctg gct gca gag gga cgt 463
 Asn Gly Asp Ser Pro Pro Trp Ser Pro Ala Leu Ala Ala Glu Gly Arg
 4 9 14 19
 ggc agc tca tgt gag gct tca gtg tca ttt gag gac gtg act gtg gac 511
 Gly Ser Ser Cys Glu Ala Ser Val Ser Phe Glu Asp Val Thr Val Asp
 20 25 30 35
 ttc agc aag gag gag tgg cag cac ttg gac cct gcc cag aga cgc ctg 559
 Phe Ser Lys Glu Glu Trp Gln His Leu Asp Pro Ala Gln Arg Arg Leu
 36 41 46 51
 tac tgg gat gtg aca cta gag aac tac agc cac ctg ctc tca gtg ggg 607
 Tyr Trp Asp Val Thr Leu Glu Asn Tyr Ser His Leu Leu Ser Val Gly
 52 57 62 67
 tac caa att ccc aag tca gag gct gcc ttc aag ttg gag caa gga gag 655
 Tyr Gln Ile Pro Lys Ser Glu Ala Ala Phe Lys Leu Glu Gln Gly Glu
 68 73 78 83
 ggg cca tgg atg ctg gag ggg gaa gcc cca cat cag agc tgt tca ggt 703
 Gly Pro Trp Met Leu Glu Gly Glu Ala Pro His Gln Ser Cys Ser Gly
 84 89 94 99
 gag gct att ggg aaa atg cag caa cag gga att cct gga gga att ttc 751
 Glu Ala Ile Gly Lys Met Gln Gln Gln Gly Ile Pro Gly Gly Ile Phe
 100 105 110 115
 ttc cac tgt gag aga ttt gat caa ccc ata gga gaa gat tca tta tgt 799
 Phe His Cys Glu Arg Phe Asp Gln Pro Ile Gly Glu Asp Ser Leu Cys

116	121	126	131	
tct att tta gaa gaa ctg tgg caa gat aat gac cag cta gag caa cgt				847
Ser Ile Leu Glu Glu Leu Trp Gln Asp Asn Asp Gln Leu Glu Gln Arg				
132	137	142	147	
cag gaa aac cag aat aac ctt tta agt cat gtg aaa gta ttg att aag				895
Gln Glu Asn Gln Asn Asn Leu Leu Ser His Val Lys Val Leu Ile Lys				
148	153	158	163	
gag agg ggc tat gaa cat aaa aac att gaa aaa ata att cat gtg act				943
Glu Arg Gly Tyr Glu His Lys Asn Ile Glu Lys Ile Ile His Val Thr				
164	169	174	179	
acc aag ctt gtt cct tca att aaa aga ctc cat aac tgt gac aca att				991
Thr Lys Leu Val Pro Ser Ile Lys Arg Leu His Asn Cys Asp Thr Ile				
180	185	190	195	
ttg aag cat act tta aac tca cat aat cat aat aga aac agt gca aca				1039
Leu Lys His Thr Leu Asn Ser His Asn His Asn Arg Asn Ser Ala Thr				
196	201	206	211	
aag aac ctt ggc aag att ttt gga aat ggt aac aat ttc ccc cat agc				1087
Lys Asn Leu Gly Lys Ile Phe Gly Asn Gly Asn Asn Phe Pro His Ser				
212	217	222	227	
cct tcc tct act aag aat gag aat gct aaa aca gga gca aat tcc tgt				1135
Pro Ser Ser Thr Lys Asn Glu Asn Ala Lys Thr Gly Ala Asn Ser Cys				
228	233	238	243	
gaa cat gac cac tat gaa aaa cat ctc agc cac aaa caa gct ccc acc				1183
Glu His Asp His Tyr Glu Lys His Leu Ser His Lys Gln Ala Pro Thr				
244	249	254	259	
cac cat cag aaa att cat cct gag gag aag ctt tat gtg tgt act gaa				1231
His His Gln Lys Ile His Pro Glu Glu Lys Leu Tyr Val Cys Thr Glu				
260	265	270	275	
tgt gta atg ggc ttc act cag aag tca cat ctg ttt gag cat cag aga				1279
Cys Val Met Gly Phe Thr Gln Lys Ser His Leu Phe Glu His Gln Arg				
276	281	286	291	
att cat gct gga gaa aag tcc cgt gaa tgt gac aaa agc aac aaa gtc				1327
Ile His Ala Gly Glu Lys Ser Arg Glu Cys Asp Lys Ser Asn Lys Val				
292	297	302	307	
ttc ccc cag aaa ccc cag gtt gat gta cat cca agt gtt tat aca gga				1375
Phe Pro Gln Lys Pro Gln Val Asp Val His Pro Ser Val Tyr Thr Gly				
308	313	318	323	
gaa aaa ccc tat ctg tgt act caa tgt ggg aaa gtc ttt acc ctc aaa				1423
Glu Lys Pro Tyr Leu Cys Thr Gln Cys Gly Lys Val Phe Thr Leu Lys				
324	329	334	339	
tca aac ctc att aca cat caa aaa att cat acc ggg cag aaa ccc tac				1471
Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Gly Gln Lys Pro Tyr				
340	345	350	355	

aaa tgc agt gaa tgt gga aaa gcc ttt ttc cag aga tca gac ctc ttt	1519
Lys Cys Ser Glu Cys Gly Lys Ala Phe Phe Gln Arg Ser Asp Leu Phe	
356 361 366 371	
aga cat ctg aga att cat aca gga gaa aaa cct tat gaa tgc agt gaa	1567
Arg His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Glu	
372 377 382 387	
tgt gga aaa ggc ttc tcc cag aac tca gac ctc agt ata cat cag aaa	1615
Cys Gly Lys Gly Phe Ser Gln Asn Ser Asp Leu Ser Ile His Gln Lys	
388 393 398 403	
act cat acc gga gag aaa cac tat gaa tgc aat gaa tgt ggg aag gct	1663
Thr His Thr Gly Glu Lys His Tyr Glu Cys Asn Glu Cys Gly Lys Ala	
404 409 414 419	
ttc aca aga aaa tca gca ctc agg atg cat cag aga atc cac acg gga	1711
Phe Thr Arg Lys Ser Ala Leu Arg Met His Gln Arg Ile His Thr Gly	
420 425 430 435	
gag aaa cct tat gta tgc gct gac tgt ggg aag gcc ttc atc cag aaa	1759
Glu Lys Pro Tyr Val Cys Ala Asp Cys Gly Lys Ala Phe Ile Gln Lys	
436 441 446 451	
tca cat ttc aac aca cat cag aga att cat act gga gaa aag ccg tat	1807
Ser His Phe Asn Thr His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr	
452 457 462 467	
gaa tgc agt gac tgt ggg aaa tcc ttc act aag aag tca caa ctc cat	1855
Glu Cys Ser Asp Cys Gly Lys Ser Phe Thr Lys Lys Ser Gln Leu His	
468 473 478 483	
gtg cat caa aga att cac acc gga gag aaa ccc tat ata tgt aca gaa	1903
Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Thr Glu	
484 489 494 499	
tgt gga aag gtc ttc act cac agg aca aac ctc acc aca cat cag aaa	1951
Cys Gly Lys Val Phe Thr His Arg Thr Asn Leu Thr Thr His Gln Lys	
500 505 510 515	
act cat act ggg gaa aaa ccc tat atg tgt gct gaa tgt gga aag gct	1999
Thr His Thr Gly Glu Lys Pro Tyr Met Cys Ala Glu Cys Gly Lys Ala	
516 521 526 531	
ttt act gac cag tca aat ctc att aaa cac cag aaa act cac act gga	2047
Phe Thr Asp Gln Ser Asn Leu Ile Lys His Gln Lys Thr His Thr Gly	
532 537 542 547	
gag aaa ccc tat aag tgc aat ggc tgt gga aaa gcc ttc ata tgg aag	2095
Glu Lys Pro Tyr Lys Cys Asn Gly Cys Gly Lys Ala Phe Ile Trp Lys	
548 553 558 563	
tcg cgc ctc aaa ata cat cag aaa tct cat att gga gag aga cac tat	2143
Ser Arg Leu Lys Ile His Gln Lys Ser His Ile Gly Glu Arg His Tyr	
564 569 574 579	

gaa tgc aag gac tgc ggg aaa gcc ttc atc cag aaa tca aca cta agc	2191
Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Thr Leu Ser	
580 585 590 595	
gtg cat cag aga atc cat aca gga gag aaa ccg tac gtt tgt cct gaa	2239
Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Pro Glu	
596 601 606 611	
tgc ggg aag gcc ttt atc cag aaa tcg cac ttc att gcg cat cat aga	2287
Cys Gly Lys Ala Phe Ile Gln Lys Ser His Phe Ile Ala His His Arg	
612 617 622 627	
atc cat act gga gag aag cct tat gaa tgc agc gac tgt ggg aaa tgc	2335
Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Asp Cys Gly Lys Cys	
628 633 638 643	
ttc act aag aag tca caa ctc cgt gtg cat cag aaa atc cac aca ggt	2383
Phe Thr Lys Lys Ser Gln Leu Arg Val His Gln Lys Ile His Thr Gly	
644 649 654 659	
gag aag ccc aat ata tgt gct gaa tgt gga aag gcc ttc act gac cga	2431
Glu Lys Pro Asn Ile Cys Ala Glu Cys Gly Lys Ala Phe Thr Asp Arg	
660 665 670 675	
tca aat ctc ata aca cat cag aaa atc cac act agg gag aaa ccc tat	2479
Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Arg Glu Lys Pro Tyr	
676 681 686 691	
gaa tgt ggt gac tgc ggg aaa acc ttc acc tgg aag tca cgc ctc aat	2527
Glu Cys Gly Asp Cys Gly Lys Thr Phe Thr Trp Lys Ser Arg Leu Asn	
692 697 702 707	
ata cat cag aag tct cat act gga gaa aga cac tat gaa tgt agt aaa	2575
Ile His Gln Lys Ser His Thr Gly Glu Arg His Tyr Glu Cys Ser Lys	
708 713 718 723	
tgt ggg aaa gct ttc atc cag aaa gcc aca cta agt atg cat cag ata	2623
Cys Gly Lys Ala Phe Ile Gln Lys Ala Thr Leu Ser Met His Gln Ile	
724 729 734 739	
att cat aca gga aag aaa cct tat gct tgt aca gaa tgt cag aag gcc	2671
Ile His Thr Gly Lys Lys Pro Tyr Ala Cys Thr Glu Cys Gln Lys Ala	
740 745 750 755	
ttt act gac aga tcg aat ctc att aaa cac cag aaa atg cat agt gga	2719
Phe Thr Asp Arg Ser Asn Leu Ile Lys His Gln Lys Met His Ser Gly	
756 761 766 771	
gaa aaa cgc tat aaa gcc agt gac tga gaaag tcttcacctg gaaatcacia	2771
Glu Lys Arg Tyr Lys Ala Ser Asp *	
772 777	
ctgggtatgc atcaggtatc taatagcagg gaggaggaag gcctgttgct gcaatcattg	2831
tacaggggga aatgggtatg agagactgag gct	2864

<210> 306
 <211> 817
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 <213> Homo sapiens

<220>
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 <222> (148)..(459)

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 gcatcgagag actataagcc ctggtctgcg actggcaatc acagtgggca gcccgatttt 120
 ctgctgagta ggcgctgtga tttcaga atg tct ggg cga ggt aaa ggt ggc 171
 Met Ser Gly Arg Gly Lys Gly Gly
 1 5
 aag ggg ctg ggt aag gga ggc gcc aag cgc cac cgg aag gtg ctg cgg 219
 Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Val Leu Arg
 9 14 19 24
 gac aat atc caa ggc att aca aag ccg gcg att cgc cgt ctc gcc cga 267
 Asp Asn Ile Gln Gly Ile Thr Lys Pro Ala Ile Arg Arg Leu Ala Arg
 25 30 35 40
 cgt ggg ggc gtc aag cgc att tct ggt ctc atc tac gag gag acc cgg 315
 Arg Gly Gly Val Lys Arg Ile Ser Gly Leu Ile Tyr Glu Glu Thr Arg
 41 46 51 56
 gga gtc ctc aaa gtc ttc ctg gag aac gtg atc cgt gac gcg gtg act 363
 Gly Val Leu Lys Val Phe Leu Glu Asn Val Ile Arg Asp Ala Val Thr
 57 62 67 72
 tac acg gag cac gcc aag cgc aag acc gtc acg gcc atg gat gtg gtg 411
 Tyr Thr Glu His Ala Lys Arg Lys Thr Val Thr Ala Met Asp Val Val
 73 78 83 88
 tac gcg ctg aaa cgc cag ggt cgc acc ctt tat ggt ttc ggc ggt tga 459
 Tyr Ala Leu Lys Arg Gln Gly Arg Thr Leu Tyr Gly Phe Gly Gly *
 89 94 99 104
 gctgtcccca cagcttctct acagactcca aaaggccctt ttcaggggcc ccaaactgtc 519
 acagaaagag ctgttaacac ttctagata acggaccaag tctagctctg ccaccgaggg 579
 tggagtgcag tggcacgata tcgcctccgc ctcccggtt caagcgattc acctgcctca 639
 gcttcccgag tagctgggat tacaggcctg cgccaccaag cctggctaata ttttgtattt 699
 tttttttttt ttgggaaaaa acgggggttt cccttggtggg ccgggggggt tttgaactcc 759
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<210> 307
 <211> 1857
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (1)..(1785)

<400> 307

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 Met Ala Ala Ala Val Leu Arg Asp Ser Thr Ser Val Pro Val Thr Ala
 1 5 10

gaa gct aaa ctt atg ggc ttt aca cag ggc tgt gtg acc ttt gag gac 96
 Glu Ala Lys Leu Met Gly Phe Thr Gln Gly Cys Val Thr Phe Glu Asp
 17 22 27 32

gtg gcc att tac ttc tcc cag gaa gaa tgg ggg ctc ctt gat gag gct 144
 Val Ala Ile Tyr Phe Ser Gln Glu Glu Trp Gly Leu Leu Asp Glu Ala
 33 38 43 48

cag agg ctc ctg tac cgc gat gtg atg ctg gag aac ttt gca ctt ata 192
 Gln Arg Leu Leu Tyr Arg Asp Val Met Leu Glu Asn Phe Ala Leu Ile
 49 54 59 64

act gcg ctg gtt tgt tgg cat ggg atg gag gat gaa gag aca cct gag 240
 Thr Ala Leu Val Cys Trp His Gly Met Glu Asp Glu Glu Thr Pro Glu
 65 70 75 80

caa agt gtt tct gta gaa gga gta cct cag gtc agg act cca gag gcc 288
 Gln Ser Val Ser Val Glu Gly Val Pro Gln Val Arg Thr Pro Glu Ala
 81 86 91 96

agt cca tcc acc cag aag att caa tcc tgt gac atg tgt gtc cca ttc 336
 Ser Pro Ser Thr Gln Lys Ile Gln Ser Cys Asp Met Cys Val Pro Phe
 97 102 107 112

ctg acc gac att ttg cac ctg acc gat ttg cct ggg cag gaa cta tac 384
 Leu Thr Asp Ile Leu His Leu Thr Asp Leu Pro Gly Gln Glu Leu Tyr
 113 118 123 128

ttg act ggg gca tgt gcg gtc ttt cac cag gac cag aag cat cat agt 432
 Leu Thr Gly Ala Cys Ala Val Phe His Gln Asp Gln Lys His His Ser
 129 134 139 144

gca gag aaa ccc ttg gaa agt gac atg gac aag gcc tca ttt gtg cag 480
 Ala Glu Lys Pro Leu Glu Ser Asp Met Asp Lys Ala Ser Phe Val Gln
 145 150 155 160

tgc tgc ctg ttc cat gag tca gga atg cct ttc acc agc agt gag gtt 528
 Cys Cys Leu Phe His Glu Ser Gly Met Pro Phe Thr Ser Ser Glu Val
 161 166 171 176

ggg aag gac ttc cta gcc cca ttg ggc att ctt cag ccg caa gct att 576

Gly	Lys	Asp	Phe	Leu	Ala	Pro	Leu	Gly	Ile	Leu	Gln	Pro	Gln	Ala	Ile		
177					182					187					192		
gct	aac	tat	gag	aag	cca	aac	aaa	atc	agc	aaa	tgt	gag	gag	gcc	ttt	624	
Ala	Asn	Tyr	Glu	Lys	Pro	Asn	Lys	Ile	Ser	Lys	Cys	Glu	Glu	Ala	Phe		
193					198					203					208		
cat	gtt	gga	ata	agt	cat	tac	aag	tgg	agt	caa	tgc	agg	aga	gag	tcc	672	
His	Val	Gly	Ile	Ser	His	Tyr	Lys	Trp	Ser	Gln	Cys	Arg	Arg	Glu	Ser		
209					214					219					224		
agc	cac	aaa	cac	act	ttt	ttt	cac	cct	aga	gtc	tgc	act	gga	aaa	agg	720	
Ser	His	Lys	His	Thr	Phe	Phe	His	Pro	Arg	Val	Cys	Thr	Gly	Lys	Arg		
225					230					235					240		
ctt	tat	gaa	tct	agc	aaa	tgt	ggg	aaa	gcc	tgc	tgc	tgt	gag	tgc	tcc	768	
Leu	Tyr	Glu	Ser	Ser	Lys	Cys	Gly	Lys	Ala	Cys	Cys	Cys	Glu	Cys	Ser		
241					246					251					256		
ctt	gtt	cag	ctg	caa	aga	gtc	cac	cct	gga	gaa	agg	cct	tat	gag	tgc	816	
Leu	Val	Gln	Leu	Gln	Arg	Val	His	Pro	Gly	Glu	Arg	Pro	Tyr	Glu	Cys		
257					262					267					272		
agt	gaa	tgt	ggg	aaa	tct	ttt	agc	caa	acc	tct	cat	ctg	aat	gat	cat	864	
Ser	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Thr	Ser	His	Leu	Asn	Asp	His		
273					278					283					288		
cgg	aga	atc	cac	act	gga	gaa	agg	cct	tat	gtg	tgt	ggg	cag	tgt	ggg	912	
Arg	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Tyr	Val	Cys	Gly	Gln	Cys	Gly		
289					294					299					304		
aaa	tca	ttt	agc	caa	aga	gcc	acc	ctc	att	aaa	cat	cac	aga	gtt	cac	960	
Lys	Ser	Phe	Ser	Gln	Arg	Ala	Thr	Leu	Ile	Lys	His	His	Arg	Val	His		
305					310					315					320		
act	gga	gaa	agg	cct	tac	gag	tgt	ggg	gaa	tgt	ggg	aaa	tct	ttt	agc	1008	
Thr	Gly	Glu	Arg	Pro	Tyr	Glu	Cys	Gly	Glu	Cys	Gly	Lys	Ser	Phe	Ser		
321					326					331					336		
caa	agt	tcc	aac	ctt	att	gaa	cat	tgc	aga	att	cac	act	gga	gaa	agg	1056	
Gln	Ser	Ser	Asn	Leu	Ile	Glu	His	Cys	Arg	Ile	His	Thr	Gly	Glu	Arg		
337					342					347					352		
cct	tat	gag	tgt	gat	gaa	tgt	gga	aaa	gcc	ttt	ggg	tcc	aaa	tcc	act	1104	
Pro	Tyr	Glu	Cys	Asp	Glu	Cys	Gly	Lys	Ala	Phe	Gly	Ser	Lys	Ser	Thr		
353					358					363					368		
ctt	gtt	cga	cac	cag	aga	act	cac	aca	gga	gaa	aag	cca	tat	gag	tgt	1152	
Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Glu	Cys		
369					374					379					384		
ggg	gaa	tgt	ggg	aaa	tta	ttc	aga	caa	agc	ttc	agc	ctt	gtt	gta	cac	1200	
Gly	Glu	Cys	Gly	Lys	Leu	Phe	Arg	Gln	Ser	Phe	Ser	Leu	Val	Val	His		
385					390					395					400		
cag	aga	att	cac	act	aca	gca	agg	cct	tat	gag	tgt	ggc	cag	tgt	ggg	1248	
Gln	Arg	Ile	His	Thr	Thr	Ala	Arg	Pro	Tyr	Glu	Cys	Gly	Gln	Cys	Gly		

401	406	411	416	
aaa tca ttt agc cta aag tgt ggc ctc att cag cac cag tta att cac				1296
Lys Ser Phe Ser Leu Lys Cys Gly Leu Ile Gln His Gln Leu Ile His				
417	422	427	432	
agt gga gct agg ccc ttt gag tgt gat gag tgc gga aaa tcc ttt agc				1344
Ser Gly Ala Arg Pro Phe Glu Cys Asp Glu Cys Gly Lys Ser Phe Ser				
433	438	443	448	
caa aga acc acc ctc aat aaa cac cac aaa gtt cac act gca gaa agg				1392
Gln Arg Thr Thr Leu Asn Lys His His Lys Val His Thr Ala Glu Arg				
449	454	459	464	
cct tat gta tgt ggg gaa tgt ggg aaa gct ttt atg ttc aaa tct aaa				1440
Pro Tyr Val Cys Gly Glu Cys Gly Lys Ala Phe Met Phe Lys Ser Lys				
465	470	475	480	
cct gtt agg cac cag aga act cac act gga gaa agg cct ttt gag tgc				1488
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Arg Pro Phe Glu Cys				
481	486	491	496	
agt gaa tgt ggg aaa ttt ttt aga caa agc tat acc ctc gtt gaa cac				1536
Ser Glu Cys Gly Lys Phe Phe Arg Gln Ser Tyr Thr Leu Val Glu His				
497	502	507	512	
cag aaa att cac act gga tta agg cct tac gac tgt gga cag tgc ggg				1584
Gln Lys Ile His Thr Gly Leu Arg Pro Tyr Asp Cys Gly Gln Cys Gly				
513	518	523	528	
aaa tcc ttt atc caa aag tct agc ctc att caa cac caa gtg gtt cac				1632
Lys Ser Phe Ile Gln Lys Ser Ser Leu Ile Gln His Gln Val Val His				
529	534	539	544	
aca gga gaa agg cca tat gag tgt ggc aaa tgt ggg aag tcc ttt aca				1680
Thr Gly Glu Arg Pro Tyr Glu Cys Gly Lys Cys Gly Lys Ser Phe Thr				
545	550	555	560	
caa cac tct ggc ctc att ctc cac cga aaa tct cac act gtg gag agg				1728
Gln His Ser Gly Leu Ile Leu His Arg Lys Ser His Thr Val Glu Arg				
561	566	571	576	
cct cgt gac agc agc aaa tgt gga aaa ccc tac agc cca aga tct aac				1776
Pro Arg Asp Ser Ser Lys Cys Gly Lys Pro Tyr Ser Pro Arg Ser Asn				
577	582	587	592	
att gtt taa ctcttga aactccaaac ctgagaaaag ccttagacct gcagggaatg				1832
Ile Val *				
593				
tgccatgtct ttcttcagtg ttatg				1857

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 <222> (166)..(804)

<400> 308

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gccgcgtcga cgtgggctgg agcggggcgga gctcgccccg cggttgcgt gagctcaggc	120
cggtcccagc gtccagagcg ccggcccttc ggctttcttct aggcc atg gca ggg	174
	Met Ala Gly
	1
ccg ggc cca ggc ccg ggg gac ccg gac gag cag tac gat ttc ctg ttc	222
Pro Gly Pro Gly Pro Gly Asp Pro Asp Glu Gln Tyr Asp Phe Leu Phe	
4 9 14 19	
aag ctg gtg ctg gtg ggc gac gca agc gtg ggc aag acg tgc gtg gtg	270
Lys Leu Val Leu Val Gly Asp Ala Ser Val Gly Lys Thr Cys Val Val	
20 25 30 35	
cag cgc ttc aag acc ggc gcc ttc tcg gag cgc cag gga agc acc atc	318
Gln Arg Phe Lys Thr Gly Ala Phe Ser Glu Arg Gln Gly Ser Thr Ile	
36 41 46 51	
ggc gtc gac ttc acc atg aag acg ctg gag atc cag ggc aag cgg gtc	366
Gly Val Asp Phe Thr Met Lys Thr Leu Glu Ile Gln Gly Lys Arg Val	
52 57 62 67	
aag ctg cag atc tgg gac acg gcc ggc cag gag cgg ttc cgc acc atc	414
Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Arg Phe Arg Thr Ile	
68 73 78 83	
acc cag agc tac tac cgc agt gcc aat ggg gcc atc ctt gcc tac gac	462
Thr Gln Ser Tyr Tyr Arg Ser Ala Asn Gly Ala Ile Leu Ala Tyr Asp	
84 89 94 99	
atc acc aag agg agc tcc ttc ctg tcg gtg cct cac tgg att gag gat	510
Ile Thr Lys Arg Ser Ser Phe Leu Ser Val Pro His Trp Ile Glu Asp	
100 105 110 115	
gtg agg aag tat gcg ggc tcc aac att gtg cag ctg ctg atc ggg aac	558
Val Arg Lys Tyr Ala Gly Ser Asn Ile Val Gln Leu Leu Ile Gly Asn	
116 121 126 131	
aag tca gac ctc agc gag ctt cgg gag gtc tcc ttg gct gag gca cag	606
Lys Ser Asp Leu Ser Glu Leu Arg Glu Val Ser Leu Ala Glu Ala Gln	
132 137 142 147	
agc ctg gct gag cac tat gac atc ctg tgt gcc att gag acg tct gcc	654
Ser Leu Ala Glu His Tyr Asp Ile Leu Cys Ala Ile Glu Thr Ser Ala	
148 153 158 163	
aag gac tcg agc aac gtg gag gag gcc ttc ctg agg gtg gcc acg gag	702

Lys	Asp	Ser	Ser	Asn	Val	Glu	Glu	Ala	Phe	Leu	Arg	Val	Ala	Thr	Glu	
164					169					174					179	
ctc	atc	atg	egg	cac	ggg	ggc	ccc	ttg	ttc	agc	gag	aag	agc	ccc	gac	750
Leu	Ile	Met	Arg	His	Gly	Gly	Pro	Leu	Phe	Ser	Glu	Lys	Ser	Pro	Asp	
180					185					190					195	
cac	atc	cag	ctg	aac	agc	aag	gac	atc	gga	gaa	ggc	tgg	ggc	tgc	ggg	798
His	Ile	Gln	Leu	Asn	Ser	Lys	Asp	Ile	Gly	Glu	Gly	Trp	Gly	Cys	Gly	
196					201					206					211	
tgc	tga	ccagggg	ccg	ggccggc	caga	ctggggg	gttc	cccac	ctc	ct	tgctct	cccc				854
Cys	*															
212																
agcctg	ccaa	gcccag	ccct	ccagag	ccag	ccctc	ctggg	taccg	gcaac	tacag	cagcc					914
gggtga	agct	ctggag	ctct	gcatc	ctgtg	gcctg	gctgc	gggat	ggagg	ctctc	cttga					974
ggaag	gggaa	gcagg	atacc	ctggc	ggggc	accct	gccag	ccagc	cagctg	gcctc	ccacc					1034
atcttc	acat	tccaag	actg	gcctga	accc	gccgg	tgtgg	gccac	agtgg	gaggg	gccag					1094
cagtc	ctccc	tgtccc	atg													1113

<210> 309
 <211> 1406
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (907)..(1029)

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gaaccg	ggat	tttgggt	tctg	ccctccc	acc	cggggg	caaa	aggagg	ctcc	ctccaaaa		180
aaaaaaaa	aaaa	attcaa	ctaata	acttt	agtcatt	gtg	acttta	agaa	agagac	ttgg		240
tcacct	tttac	tgtaac	actc	agacat	catt	tacttc	agtt	gatgg	agatt	tcaaaa	ttcc	300
ttttcaa	aag	agctaa	acat	acaaac	acca	tgaaaa	agtc	acctag	gcct	tgcaaa	acgg	360
aaactta	gaa	aacgtg	agaa	aatac	agcac	tatcag	tcct	tgaaat	tgcg	aagatg	tcaa	420
ctggct	tagag	tttaata	aca	agaat	gagta	aactct	ggga	attctg	aaaa	atcac	acaca	480
tgaaac	atac	agtctag	tta	tcatttt	ctag	acttct	ctgct	cattaaa	aaaa	taatgg	taac	540
ctgaag	atgt	cacact	gctt	ctctac	agat	ttgact	gggt	tctggg	gttct	gcctaa	aagg	600

accctgttgg caacaaccta agttcacttg tactgatcac attttccaag tactctagtc 660
 ggtaatttta cactttatntt ttttaaaaag ttgatttaaa aaagaaacaa cacaagtnta 720
 gaatccataa aatgtcagca atgctgatgt gcactggact gaaacatctt gatcatcttc 780
 tgatagaagt aatattccat acaaaaagat tcttagattc catttttttg ttcattattg 840
 tttgtggcctt gctttctttg agcaataaag gggtagatac acttgctccg tcttaggaac 900
 cgatac atg cac aca act gct tca aat ggt agg atg ctc ttc atg aag 948
 Met His Thr Thr Ala Ser Asn Gly Arg Met Leu Phe Met Lys
 1 5 10
 gtc acg atg tac atg agg cgg gga gtg cag atc atg ggc tgg tca gtg 996
 Val Thr Met Tyr Met Arg Arg Gly Val Gln Ile Met Gly Trp Ser Val
 15 20 25 30
 agg atg gcc ttc atg gcc tgc ttc aca cag taa tcaggcctt cagagggtggc 1047
 Arg Met Ala Phe Met Ala Cys Phe Thr Gln *
 31 36 41
 agaaaaggct caatttcttt cctgaaagtt atttattcaa aaacaaaatg aaaaattaac 1107
 tcaatagaaa agactggaaa tacatatcaa aacattaaca gtgatgttat ctgagtgatg 1167
 ggattttggg tacattttgt tttcttcata gtgcttttct gtattttcca aattttcctg 1227
 ctatgaacac attttatttg cacagtctgg agaacaagtt gggaaaaaaa agcaaaattg 1287
 gtctgctttt ccataagatg aaaaagtcac gtttttaaga tgccttaaaa gtatttcaaa 1347
 ttattttcct atgaaagctt caatgaaaag gagaagggtg ttggccggac gcgtgggtc 1406

<210> 310
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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (375) .. (1127)

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 gaaagccagg cctcagagcc gcagaccac ccggccaccc ctcagcgtct acgccccga 60
 aacgtctggg ccctcacctg gccgggggcg tcgtcccctt ccaggactcc ctggtttaac 120
 gcgcttcccc ccattgctta gctgcccctc ctgtggcgtg agccttcggc ctggtgcgcc 180
 ccgctgccct tcttggtgt gactctggtg gggttccgaa ggccccctta tgccccgcag 240
 accctaccg acggcggcat tacattctgg ggccacgagg aggcactcat cgtttcgttc 300

caaccgccgc caacggccct ggccttcgcg agctctggaa ctacagaggt cgcacgcccg	360
ggcagtgagt gtgg atg gct tgg cag gtg agc ctg ctg gag ctg gag gac	410
Met Ala Trp Gln Val Ser Leu Leu Glu Leu Glu Asp	
1 5 10	
cgg ctt cag tgt ccc atc tgc ctg gag gtc ttc aag gag tcc cta atg	458
Arg Leu Gln Cys Pro Ile Cys Leu Glu Val Phe Lys Glu Ser Leu Met	
13 18 23 28	
cta cag tgc ggc cac tcc tac tgc aag ggc tgc ctg gtt tcc ctg tcc	506
Leu Gln Cys Gly His Ser Tyr Cys Lys Gly Cys Leu Val Ser Leu Ser	
29 34 39 44	
tac cac ctg gac acc aag gtg cgc tgc ccc atg tgc tgg cag gtg gtg	554
Tyr His Leu Asp Thr Lys Val Arg Cys Pro Met Cys Trp Gln Val Val	
45 50 55 60	
gac ggc agc agc tcc ttg ccc aac gtc tcc ctg gcc tgg gtg atc gaa	602
Asp Gly Ser Ser Ser Leu Pro Asn Val Ser Leu Ala Trp Val Ile Glu	
61 66 71 76	
gcc ctg agg ctc cct ggg gac ccg gag ccc aag gtc tgc gtg cac cac	650
Ala Leu Arg Leu Pro Gly Asp Pro Glu Pro Lys Val Cys Val His His	
77 82 87 92	
cgg aac ccg ctc agc ctt ttc tgc gag aag gac cag gag ctc atc tgt	698
Arg Asn Pro Leu Ser Leu Phe Cys Glu Lys Asp Gln Glu Leu Ile Cys	
93 98 103 108	
ggc ctc tgc ggt ctg ctg ggc tcc cac caa cac cac ccg gtc acg ccc	746
Gly Leu Cys Gly Leu Leu Gly Ser His Gln His His Pro Val Thr Pro	
109 114 119 124	
gtc tcc acc gtc tgc agc cgc atg aag gag gag ctc gca gcc ctc ttc	794
Val Ser Thr Val Cys Ser Arg Met Lys Glu Glu Leu Ala Ala Leu Phe	
125 130 135 140	
tct gag ctg aag cag gag cag aag aag gtg gat gag ctc atc gcc aaa	842
Ser Glu Leu Lys Gln Glu Gln Lys Lys Val Asp Glu Leu Ile Ala Lys	
141 146 151 156	
ctg gtg aaa aac cgg acc cga atc gtc aat gag tgc gat gtc ttc agc	890
Leu Val Lys Asn Arg Thr Arg Ile Val Asn Glu Ser Asp Val Phe Ser	
157 162 167 172	
tgg gtg atc cgc cgc gag ttc cag gag ctg cgc cac ccg gtg gac gag	938
Trp Val Ile Arg Arg Glu Phe Gln Glu Leu Arg His Pro Val Asp Glu	
173 178 183 188	
gag cag gcc cgc tgc ctg gag ggg ata ggg ggt cac acc cgt ggc ctg	986
Glu Gln Ala Arg Cys Leu Glu Gly Ile Gly Gly His Thr Arg Gly Leu	
189 194 199 204	
gtg gcc tcc ctg gac atg cag ctg gag cag gcc cag gga acc cgg gag	1034
Val Ala Ser Leu Asp Met Gln Leu Glu Gln Ala Gln Gly Thr Arg Glu	

205	210	215	220	
cgg ctg gcc caa gcc gag tgt gtg ctg gaa cag ttc ggc aat gag gac				1082
Arg Leu Ala Gln Ala Glu Cys Val Leu Glu Gln Phe Gly Asn Glu Asp				
221	226	231	236	
cac cat gag ttc atc tgg aag ttc cac tcc atg gcc tcc agg taa taa				1130
His His Glu Phe Ile Trp Lys Phe His Ser Met Ala Ser Arg *				
237	242	247		
ccttgaggag agctcagcca ggggtctggtg gctgcgggca cgggcatctc agctccactg				1190
gttcctccat tcagcttaac cagcgctcc caagcagctg cctatagctg gctctataac				1250
tgagcctggg gaagatagag gaaagtcacg tccctgcctt caagggtctc gcagacaggt				1310
ggggaggcag atggtgaact gtgggtacct agaacagcag aagttcactc aagctacaga				1370
aatactagag gaggggtggct catgcctgca atcccagtac tttgggaggc caaggcagga				1430
gtattgctgg aggccgggag ttcgagacca gcttgggccaa tgtagtaaca cccccgtctc				1490
tacaaaaaat acaaaaataa aaaaattagt tgggaaaaaa aaaaaaa				1537

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (71)..(988)

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tattotaaaa	atg gcg ccg cta gac ctg gac aag tat gtg gaa ata gcg			109
	Met Ala Pro Leu Asp Leu Asp Lys Tyr Val Glu Ile Ala			
	1 5 10			
cgg ctg tgc aag tac ctg cca gag aac gac ctg aag cgg cta tgt gac				157
Arg Leu Cys Lys Tyr Leu Pro Glu Asn Asp Leu Lys Arg Leu Cys Asp				
14 19 24 29				
tac gtt tgt gac ctg cta tta gaa gag tca aat gtt cag cca gta tca				205
Tyr Val Cys Asp Leu Leu Leu Glu Glu Ser Asn Val Gln Pro Val Ser				
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Cys Glu Leu Phe Arg Thr Gly Gly Gln Val Pro Asp Thr Asn Tyr Ile				

62	67	72	77	
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Cys Thr Lys Val Phe Asp Met Leu Thr Val Ala Ala Leu Ile Asp Glu				
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Gln Ile Leu Cys Val His Gly Gly Leu Ser Pro Asp Ile Lys Thr Leu				
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Ser Ile Met Val Phe Lys Asp Val Asn Thr Arg Glu Pro Lys Leu Phe				
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Pro Tyr Phe Leu *
302

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Pro Phe Thr Cys Ser Val Cys Gly Lys Gly Phe Ser Gln Ser Ala Asn				
221	226	231	236	
ctc gtt gtg cat cag cga atc cac act gga gag aaa ccc ttt gaa tgt				948
Leu Val Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys				
237	242	247	252	
cat gag tgt ggg aag gcc ttc att cag agt gca aac ctc gtt gtg cat				996
His Glu Cys Gly Lys Ala Phe Ile Gln Ser Ala Asn Leu Val Val His				
253	258	263	268	
cag aga atc cac act gga cag aaa cct tat gtt tgc tca aaa tgt ggg				1044
Gln Arg Ile His Thr Gly Gln Lys Pro Tyr Val Cys Ser Lys Cys Gly				
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Lys Ala Phe Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His				
285	290	295	300	
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Ser Leu Glu Lys Thr Phe Lys Cys Asn Glu Cys Glu Lys Ala Phe Ser				
301	306	311	316	
tac agc tca caa ctt gct cgg cac cag aaa gtc cac att acg gaa aaa				1188
Tyr Ser Ser Gln Leu Ala Arg His Gln Lys Val His Ile Thr Glu Lys				
317	322	327	332	
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Cys Tyr Glu Cys Asn Glu Cys Gly Lys Thr Phe Thr Arg Ser Ser Asn				
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Leu Ile Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Ala Cys				
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Asn Asp Cys Gly Lys Ala Phe Thr Gln Ser Ala Asn Leu Ile Val His				
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Lys Ala Phe Ser Cys Phe Ser His Leu Ile Val His Gln Arg Ile His				
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413	418	423	428	

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Pro Tyr Val Cys Asn Glu Cys Gly Lys Ala Phe Thr Cys Ser Ser Tyr	
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477 482 487 492	
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Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly	
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Leu Val Glu *	
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gcc gag gca gcg cta gtg aat acg ccg cag att ccc atg gta aca gaa      343
Ala Glu Ala Ala Leu Val Asn Thr Pro Gln Ile Pro Met Val Thr Glu
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gag ttt gtg aaa cca tca cag ggc cat gtg acc ttt gag gat att gct      391
Glu Phe Val Lys Pro Ser Gln Gly His Val Thr Phe Glu Asp Ile Ala
  18                               23                               28                               33

gtg tac ttc tcc cag gag gag tgg ggc ctc ctt gat gaa gct caa agg      439
Val Tyr Phe Ser Gln Glu Glu Trp Gly Leu Leu Asp Glu Ala Gln Arg
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tgc ctg tat cat gat gtg atg ctg gag aac ttt tcg ctt atg gcc tca      487
Cys Leu Tyr His Asp Val Met Leu Glu Asn Phe Ser Leu Met Ala Ser
  50                               55                               60                               65

gta ggt tgt ttg cat gga ata gag gct gag gag gcc cct tct gag cag      535
Val Gly Cys Leu His Gly Ile Glu Ala Glu Glu Ala Pro Ser Glu Gln
  66                               71                               76                               81

act ctt tct gcg caa gga gtg tca cag gcc agg act cca aag cta ggt      583
Thr Leu Ser Ala Gln Gly Val Ser Gln Ala Arg Thr Pro Lys Leu Gly
  82                               87                               92                               97

cct tcc atc cca aat gct cat tct tgt gag atg tgt atc ctg gtc atg      631
Pro Ser Ile Pro Asn Ala His Ser Cys Glu Met Cys Ile Leu Val Met
  98                               103                               108                               113

aaa gac att ttg tac ctc agt gag cat cag ggg aca ctt ccc tgg cag      679
Lys Asp Ile Leu Tyr Leu Ser Glu His Gln Gly Thr Leu Pro Trp Gln
 114                               119                               124                               129

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Lys Glu Glu Ser Ser	Ala Leu Leu Leu Asn	Ser Cys Lys Ile Pro Leu	
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Gly Lys Ser Phe Arg	His Lys Gln Thr Phe	Val Gly His Gln Gln Arg	
338	343	348 353	
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Gln	Ser	Leu	Leu	Asp	His	His	Arg	Ile	His	Thr	Gly	Glu	Arg	Pro	Tyr	
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Glu	Cys	Lys	Glu	Cys	Gly	Lys	Ala	Phe	Ile	His	Lys	Lys	Arg	Leu	Leu	
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Cys	Gly	Lys	Cys	Phe	Arg	His	Arg	Thr	Ser	Leu	Ile	Gln	His	Gln	Lys	
562					567					572					577	
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Val	His	Ser	Gly	Glu	Arg	Pro	Tyr	Asn	Cys	Thr	Ala	Cys	Glu	Lys	Ala	

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 Glu Ile Pro Ala Thr Ser Arg Ser Ser Glu Glu Lys Ala Pro Thr Leu
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 ccc agc gac aac cac cgg gtg gag ggc aca gca tgg ctc ccg ggc aac 1220
 Pro Ser Asp Asn His Arg Val Glu Gly Thr Ala Trp Leu Pro Gly Asn
 34 39 44 49
 cct ggt ggc cgg ggc cac ggg ggc ggg agg cat ggg ccg gca ggg acc 1268
 Pro Gly Gly Arg Gly His Gly Gly Gly Arg His Gly Pro Ala Gly Thr
 50 55 60 65
 tcg gtg gag ctt ggt tta caa cag gga ata ggt tta cac aaa gca ttg 1316
 Ser Val Glu Leu Gly Leu Gln Gln Gly Ile Gly Leu His Lys Ala Leu
 66 71 76 81
 tcc aca ggg ctg gac tac tcc ccg ccc agc gct ccc agg tct gtc ccc 1364
 Ser Thr Gly Leu Asp Tyr Ser Pro Pro Ser Ala Pro Arg Ser Val Pro
 82 87 92 97
 gtg gcc acc acg ctg cct gcc gcg tac gcc acc ccg cag cca ggg acc 1412
 Val Ala Thr Thr Leu Pro Ala Ala Tyr Ala Thr Pro Gln Pro Gly Thr
 98 103 108 113
 ccg gtg tcc ccc gtg cag tac gct cac ctg ccg cac acc ttc cag ttc 1460
 Pro Val Ser Pro Val Gln Tyr Ala His Leu Pro His Thr Phe Gln Phe
 114 119 124 129
 att ggg tcc tcc caa tac agt gga acc tat gcc agc ttc atc cca tca 1508
 Ile Gly Ser Ser Gln Tyr Ser Gly Thr Tyr Ala Ser Phe Ile Pro Ser
 130 135 140 145
 cag ctg atc ccc cca acc gcc aac ccc gtc acc agt gca gtg gcc tcg 1556
 Gln Leu Ile Pro Pro Thr Ala Asn Pro Val Thr Ser Ala Val Ala Ser
 146 151 156 161
 gcc gca ggg gcc acc act cca tcc cag cgc tcc cag ctg gag gcc tat 1604
 Ala Ala Gly Ala Thr Thr Pro Ser Gln Arg Ser Gln Leu Glu Ala Tyr
 162 167 172 177
 tcc act ctg ctg gcc aac atg ggc agt ctg agc cag acg ccg gga cac 1652
 Ser Thr Leu Leu Ala Asn Met Gly Ser Leu Ser Gln Thr Pro Gly His
 178 183 188 193

aag gct gag cag cag cag cag cag cag cag cag cag cag cag cag cag	1700
Lys Ala Glu Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln	
194 199 204 209	
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Gln Gln Gln Gln Gln His Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln	
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Gln Gln Gln Gln Gln Gln His Leu Ser Arg Ala Pro Gly Leu Ile Thr	
226 231 236 241	
ccg ggg tcc ccc cca cca gcc cag cag aac cag tac gtc cac att tcc	1844
Pro Gly Ser Pro Pro Pro Ala Gln Gln Asn Gln Tyr Val His Ile Ser	
242 247 252 257	
agt tct ccg cag aac acc ggc cgc acc gcc tct cct ccg gcc atc ccc	1892
Ser Ser Pro Gln Asn Thr Gly Arg Thr Ala Ser Pro Pro Ala Ile Pro	
258 263 268 273	
gtc cac ctc cac ccc cac cag acg atg atc cca cac acg ctc acc ctg	1940
Val His Leu His Pro His Gln Thr Met Ile Pro His Thr Leu Thr Leu	
274 279 284 289	
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Gly Pro Pro Ser Gln Val Val Met Gln Tyr Ala Asp Ser Gly Ser His	
290 295 300 305	
ttt gtc cct cgg gag gcc acc aag aaa gcc gag agc agc cgg ctg cag	2036
Phe Val Pro Arg Glu Ala Thr Lys Lys Ala Glu Ser Ser Arg Leu Gln	
306 311 316 321	
cag gcc atc cag gcc aag gag gtc ctg aac ggt gag atg gag aag agc	2084
Gln Ala Ile Gln Ala Lys Glu Val Leu Asn Gly Glu Met Glu Lys Ser	
322 327 332 337	
cgg cgg tac ggg gcc ccg tcc tca gcc gac ctg ggc ctg ggc aag gca	2132
Arg Arg Tyr Gly Ala Pro Ser Ser Ala Asp Leu Gly Leu Gly Lys Ala	
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Gly Gly Lys Ser Val Pro His Pro Tyr Glu Ser Arg His Val Val Val	
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His Pro Ser Pro Ser Asp Tyr Ser Ser Arg Asp Pro Ser Gly Val Arg	
370 375 380 385	
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Ala Ser Val Met Val Leu Pro Asn Ser Asn Thr Pro Ala Ala Asp Leu	
386 391 396 401	
gag gtg caa cag gcc act cat cgt gaa gcc tcc cct tct acc ctc aac	2324
Glu Val Gln Gln Ala Thr His Arg Glu Ala Ser Pro Ser Thr Leu Asn	
402 407 412 417	
gac aaa agt ggc ctg cat tta ggg aag cct ggc cac ccg tcc tac gcg	2372

Asp	Lys	Ser	Gly	Leu	His	Leu	Gly	Lys	Pro	Gly	His	Arg	Ser	Tyr	Ala		
418					423					428					433		
ctc	tca	ccc	cac	acg	gtc	att	cag	acc	aca	cac	agt	gct	tca	gag	cca	2420	
Leu	Ser	Pro	His	Thr	Val	Ile	Gln	Thr	Thr	His	Ser	Ala	Ser	Glu	Pro		
434					439					444					449		
ctc	ccg	gtg	gga	ctg	cca	gcc	acg	gcc	ttc	tac	gca	ggg	act	caa	ccc	2468	
Leu	Pro	Val	Gly	Leu	Pro	Ala	Thr	Ala	Phe	Tyr	Ala	Gly	Thr	Gln	Pro		
450					455					460					465		
cct	gtc	atc	ggc	tac	ctg	agc	ggc	cag	cag	caa	gca	atc	acc	tac	gcc	2516	
Pro	Val	Ile	Gly	Tyr	Leu	Ser	Gly	Gln	Gln	Gln	Ala	Ile	Thr	Tyr	Ala		
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ggc	agc	ctg	ccc	cag	cac	ctg	gtg	atc	ccc	ggc	aca	cag	ccc	ctg	ctc	2564	
Gly	Ser	Leu	Pro	Gln	His	Leu	Val	Ile	Pro	Gly	Thr	Gln	Pro	Leu	Leu		
482					487					492					497		
atc	ccg	gtc	ggc	agc	act	gac	atg	gaa	gcg	tcg	ggg	gca	gcc	ccg	gcc	2612	
Ile	Pro	Val	Gly	Ser	Thr	Asp	Met	Glu	Ala	Ser	Gly	Ala	Ala	Pro	Ala		
498					503					508					513		
ata	gtc	acg	tca	tcc	ccc	cag	ttt	gct	gca	gtg	cct	cac	acg	ttc	gtc	2660	
Ile	Val	Thr	Ser	Ser	Pro	Gln	Phe	Ala	Ala	Val	Pro	His	Thr	Phe	Val		
514					519					524					529		
acc	acc	gcc	ctt	ccc	aag	agc	gag	aac	ttc	aac	cct	gag	gcc	ctg	gtc	2708	
Thr	Thr	Ala	Leu	Pro	Lys	Ser	Glu	Asn	Phe	Asn	Pro	Glu	Ala	Leu	Val		
530					535					540					545		
acc	cag	gcc	gcc	tac	cca	gcc	atg	gtg	cag	gcc	cag	atc	cac	ctg	cct	2756	
Thr	Gln	Ala	Ala	Tyr	Pro	Ala	Met	Val	Gln	Ala	Gln	Ile	His	Leu	Pro		
546					551					556					561		
gtg	gtg	cag	tcc	gtg	gcc	tcc	ccg	gcg	gcg	gct	ccc	cct	acg	ctg	cct	2804	
Val	Val	Gln	Ser	Val	Ala	Ser	Pro	Ala	Ala	Ala	Pro	Pro	Thr	Leu	Pro		
562					567					572					577		
ccc	tac	ttc	atg	aaa	ggc	tcc	atc	atc	cag	ttg	gcc	aac	ggg	gag	cta	2852	
Pro	Tyr	Phe	Met	Lys	Gly	Ser	Ile	Ile	Gln	Leu	Ala	Asn	Gly	Glu	Leu		
578					583					588					593		
aag	aag	gtg	gaa	gac	tta	aaa	aca	gaa	gat	ttc	atc	cag	agt	gca	gag	2900	
Lys	Lys	Val	Glu	Asp	Leu	Lys	Thr	Glu	Asp	Phe	Ile	Gln	Ser	Ala	Glu		
594					599					604					609		
ata	agc	aac	gac	ctg	aag	atc	gac	tcc	agc	acc	gta	gag	agg	att	gaa	2948	
Ile	Ser	Asn	Asp	Leu	Lys	Ile	Asp	Ser	Ser	Thr	Val	Glu	Arg	Ile	Glu		
610					615					620					625		
gac	agc	cat	agc	ccg	ggc	gtg	gcc	gtg	ata	cag	ttc	gcc	gtc	ggg	gag	2996	
Asp	Ser	His	Ser	Pro	Gly	Val	Ala	Val	Ile	Gln	Phe	Ala	Val	Gly	Glu		
626					631					636					641		
cac	cga	gcc	cag	gtc	agc	gtt	gaa	gtt	ttg	gta	gag	tat	cct	ttt	ttt	3044	
His	Arg	Ala	Gln	Val	Ser	Val	Glu	Val	Leu	Val	Glu	Tyr	Pro	Phe	Phe		

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gtg ttt gga cag ggc	tgg tca tcc tgc tgt	ccg gag aga acc agc cag	3092	
Val Phe Gly Gln Gly	Trp Ser Ser Cys Cys	Pro Glu Arg Thr Ser Gln		
658	663	668	673	
ctc ttt gat ttg ccg	tgt tcc aaa ctc tca	gtt ggg gat gtc tgc atc	3140	
Leu Phe Asp Leu Pro	Cys Ser Lys Leu Ser	Val Gly Asp Val Cys Ile		
674	679	684	689	
tcg ctt acc ctc aag	aac ctg aag aac ggc	tct gtt aaa aag ggc cag	3188	
Ser Leu Thr Leu Lys	Asn Leu Lys Asn Gly	Ser Val Lys Lys Gly Gln		
690	695	700	705	
ccc gtg gat ccc gcc	agc gtc ctg ctg aag	cac tca aag gcc gac ggc	3236	
Pro Val Asp Pro Ala	Ser Val Leu Leu Lys	His Ser Lys Ala Asp Gly		
706	711	716	721	
ctg gcg ggc agc aga	cac agg tat gcc gag	cag gaa aac gga atc aac	3284	
Leu Ala Gly Ser Arg	His Arg Tyr Ala Glu	Gln Glu Asn Gly Ile Asn		
722	727	732	737	
cag ggg agt gcc cag	atg ctc tct gag aat	ggc gaa ctg aag ttt cca	3332	
Gln Gly Ser Ala Gln	Met Leu Ser Glu Asn	Gly Glu Leu Lys Phe Pro		
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gag aaa atg gga ttg	tct gca gcg ccc ttc	ctc acc aaa ata gaa ccc	3380	
Glu Lys Met Gly Leu	Ser Ala Ala Pro Phe	Leu Thr Lys Ile Glu Pro		
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Ser Lys Pro Ala Ala	Thr Arg Lys Arg Arg	Trp Ser Ala Pro Glu Ser		
770	775	780	785	
cgc aaa ctg gag aag	tca gaa gac gaa cca	cct ttg act ctt cct aag	3476	
Arg Lys Leu Glu Lys	Ser Glu Asp Glu Pro	Pro Leu Thr Leu Pro Lys		
786	791	796	801	
cct tct cta att cct	cag gag gtt aag att	tgc att gaa ggc cgg tct	3524	
Pro Ser Leu Ile Pro	Gln Glu Val Lys Ile	Cys Ile Glu Gly Arg Ser		
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Asn Val Gly Lys *				
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gcttgacagg	tttctaggta	gaaattattt	cattattata	ataaaacaat	gtttgattca	10659
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 Tyr Glu Glu Thr Arg Ser Gln Gln Gly Ser Val Gly Glu Arg Cys Ser
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gca aaa tgg gct ctc cgg cag cgg atc tgc gca gaa gcg ttc cgt gcg 146
 Ala Lys Trp Ala Leu Arg Gln Arg Ile Cys Ala Glu Ala Phe Arg Ala
 26 31 36 41

tgc aag tgc tgc gaa cca cgt ggg tcc cgg gcg cgt ttc ggg tgc tgg 194
 Cys Lys Cys Cys Glu Pro Arg Gly Ser Arg Ala Arg Phe Gly Cys Trp
 42 47 52 57

cgg ctg cag ccg gag ttc aaa cct aag cag ctg gaa gga acc atg gcc 242
 Arg Leu Gln Pro Glu Phe Lys Pro Lys Gln Leu Glu Gly Thr Met Ala
 58 63 68 73

aac tgt gag cgt acc ttc att gcg atc aaa cca gat ggg gtc cag cgg 290
 Asn Cys Glu Arg Thr Phe Ile Ala Ile Lys Pro Asp Gly Val Gln Arg
 74 79 84 89

ggt ctt gtg gga gag att atc aag cgt ttt gag cag aaa gga ttc cgc 338
 Gly Leu Val Gly Glu Ile Ile Lys Arg Phe Glu Gln Lys Gly Phe Arg
 90 95 100 105

ctt gtt ggt ctg aaa ttc atg caa gct tcc gaa gat ctt ctc aag gaa 386
 Leu Val Gly Leu Lys Phe Met Gln Ala Ser Glu Asp Leu Leu Lys Glu
 106 111 116 121

cac tac gtt gac ctg aag gac cgt cca ttc ttt gcc ggc ctg gtg aaa 434
 His Tyr Val Asp Leu Lys Asp Arg Pro Phe Phe Ala Gly Leu Val Lys
 122 127 132 137

tac atg cac tca ggg ccg gta gtt gcc atg gtc tgg gag ggg ctg aat 482
 Tyr Met His Ser Gly Pro Val Val Ala Met Val Trp Glu Gly Leu Asn
 138 143 148 153

gtg gtg aag acg ggc cga gtc atg ctc ggg gag acc aac cct gca gac 530
 Val Val Lys Thr Gly Arg Val Met Leu Gly Glu Thr Asn Pro Ala Asp
 154 159 164 169

tcc aag cct ggg acc atc cgt gga gac ttc tgc ata caa gtt ggc agg	578
Ser Lys Pro Gly Thr Ile Arg Gly Asp Phe Cys Ile Gln Val Gly Arg	
170 175 180 185	

aac att ata cat ggc agt gat tct gtg gag agt gca gag aag gag atc	626
Asn Ile Ile His Gly Ser Asp Ser Val Glu Ser Ala Glu Lys Glu Ile	
186 191 196 201	

ggc ttg tgg ttt cgc cct gag gaa ctg gta gat tac acg agc tgt gct	674
Gly Leu Trp Phe Arg Pro Glu Glu Leu Val Asp Tyr Thr Ser Cys Ala	
202 207 212 217	

cag aac tgg atc tat gaa tga ca ggagggcaga ccacattgct tttcacatcc	727
Gln Asn Trp Ile Tyr *	
218 223	

atttccccctc cttcccatgg gcagaggacc aggctgtagg aaatctagtt atttacagga	787
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acttcatcat aatttggagg gaagctcttg gaagcccgtg agttctccct gtacagtgtt	847
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Met Leu Asn Lys Lys Thr Lys Gln Ile Gln Asp Met	
1 5 10	

gct gaa gag aag ggg aca caa gct gga gag ata cat gac ctc aag gac	219
Ala Glu Glu Lys Gly Thr Gln Ala Gly Glu Ile His Asp Leu Lys Asp	
13 18 23 28	

atg ttg gat gtg aag gag cgg aag gtt aat gtt ctt cag aag aag att	267
Met Leu Asp Val Lys Glu Arg Lys Val Asn Val Leu Gln Lys Lys Ile	
29 34 39 44	

gaa aat ctt caa gag cag ctt aga gac aag gaa aag cag atg agc agc	315
Glu Asn Leu Gln Glu Gln Leu Arg Asp Lys Glu Lys Gln Met Ser Ser	
45 50 55 60	

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Leu Lys Glu Arg Val	Lys Ser Leu Gln Ala	Asp Thr Thr Asn Thr Asp	
61	66	76	
act gcc ttg aca act	ttg gag gag gcc ctt	gca gag aaa gag cgg aca	411
Thr Ala Leu Thr Thr	Leu Glu Glu Ala Leu	Ala Glu Lys Glu Arg Thr	
77	82	92	
att gaa cgc tta aag	gag cag agg gac aga	gat gag cga gag aag caa	459
Ile Glu Arg Leu Lys	Glu Gln Arg Asp Arg	Asp Glu Arg Glu Lys Gln	
93	98	108	
gag gaa att gat aac	tac aaa aaa gat ctt	aaa gac ttg aag gaa aaa	507
Glu Glu Ile Asp Asn	Tyr Lys Lys Asp Leu	Lys Asp Leu Lys Glu Lys	
109	114	124	
gtc agc ctg ttg caa	ggc gac ctt tca gag	aaa gag gct tca ctt ttg	555
Val Ser Leu Leu Gln	Gly Asp Leu Ser Glu	Lys Glu Ala Ser Leu Leu	
125	130	140	
gat ctg aaa gag cat	gct tct tct ctg gca	tcc tca gga ctg aaa aag	603
Asp Leu Lys Glu His	Ala Ser Ser Leu Ala	Ser Ser Gly Leu Lys Lys	
141	146	156	
gac tca cgg ctt aag	aca cta gag att gct	ttg gag cag aag aag gag	651
Asp Ser Arg Leu Lys	Thr Leu Glu Ile Ala	Leu Glu Gln Lys Lys Glu	
157	162	172	
gag tgt ctg aaa atg	gaa tca caa ttg aaa	aag gca cat gag gca gca	699
Glu Cys Leu Lys Met	Glu Ser Gln Leu Lys	Lys Ala His Glu Ala Ala	
173	178	188	
ttg gaa gcc aga gcc	agt cca gag atg agt	gac cga ata cag cac ttg	747
Leu Glu Ala Arg Ala	Ser Pro Glu Met Ser	Asp Arg Ile Gln His Leu	
189	194	204	
gag aga gag atc acc	agg tac aaa gat gaa	tct agc aag gcc cag gca	795
Glu Arg Glu Ile Thr	Arg Tyr Lys Asp Glu	Ser Ser Lys Ala Gln Ala	
205	210	220	
gaa gtt gat cga ctc	tta gaa atc ttg aag	gag gtg gaa aat gag aag	843
Glu Val Asp Arg Leu	Leu Glu Ile Leu Lys	Glu Val Glu Asn Glu Lys	
221	226	236	
aat gac aaa gat aag	aag ata gct gag ttg	gaa agt ctc acc tca agg	891
Asn Asp Lys Asp Lys	Lys Ile Ala Glu Leu	Glu Ser Leu Thr Ser Arg	
237	242	252	
caa gtg aaa gac cag	aat aag aag gta gca	aat ctg aag cac aag gaa	939
Gln Val Lys Asp Gln	Asn Lys Lys Val Ala	Asn Leu Lys His Lys Glu	
253	258	268	
cag gtg gaa aaa aag	aag agt gca caa atg	tta gag gag gcg cga cga	987
Gln Val Glu Lys Lys	Lys Ser Ala Gln Met	Leu Glu Glu Ala Arg Arg	
269	274	284	

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Arg Glu Asp Asn Leu Asn Asp Ser Ser Gln Gln Leu Gln Asp Ser Leu	
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cgt aag aag gat gac agg att gaa gag ctg gaa gaa gca cta aga gaa	1083
Arg Lys Lys Asp Asp Arg Ile Glu Glu Leu Glu Glu Ala Leu Arg Glu	
301 306 311 316	
agt gta cag ata act gca gag cgg gaa atg gtg cta gca caa gag gaa	1131
Ser Val Gln Ile Thr Ala Glu Arg Glu Met Val Leu Ala Gln Glu Glu	
317 322 327 332	
tca gcc agg acc aat gct gaa aaa cag gtg gag gag tta ctg atg gcc	1179
Ser Ala Arg Thr Asn Ala Glu Lys Gln Val Glu Glu Leu Leu Met Ala	
333 338 343 348	
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Met Glu Lys Val Lys Gln Glu Leu Glu Ser Met Lys Ala Lys Leu Ser	
349 354 359 364	
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Ser Thr Gln Gln Ser Leu Ala Glu Lys Glu Thr His Leu Thr Asn Leu	
365 370 375 380	
cgg gca gag aga agg aaa cac tta gag gaa gtt ctg gag atg aag caa	1323
Arg Ala Glu Arg Arg Lys His Leu Glu Glu Val Leu Glu Met Lys Gln	
381 386 391 396	
gaa gct ctt ctg gct gcc att agt gaa aaa gac gcc aat ata gct ctc	1371
Glu Ala Leu Leu Ala Ala Ile Ser Glu Lys Asp Ala Asn Ile Ala Leu	
397 402 407 412	
ttg gag ctt tcg tcc tct aag aag aag acc caa gag gaa gtg gct gcc	1419
Leu Glu Leu Ser Ser Ser Lys Lys Lys Thr Gln Glu Glu Val Ala Ala	
413 418 423 428	
ctg aag cgg gag aag gat cgt ctg gta cag cag ctt aag cag cag acg	1467
Leu Lys Arg Glu Lys Asp Arg Leu Val Gln Gln Leu Lys Gln Gln Thr	
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Gln Asn Arg Met Lys Leu Met Ala Asp Asn Tyr Glu Asp Asp His Phe	
445 450 455 460	
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Lys Ser Ser His Ser Asn Gln Thr Asn His Lys Pro Ser Pro Asp Gln	
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5256

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ccccgacctt ccctcgtagg ccggacc atg gga acc cca aag cca cgg atc 231
Met Gly Thr Pro Lys Pro Arg Ile
1 5

ctg ccc tgg ctg gtg tgc cag ctg gac ctg ggg caa ctg gag ggc gtg 279
Leu Pro Trp Leu Val Ser Gln Leu Asp Leu Gly Gln Leu Glu Gly Val
9 14 19 24

gcc tgg gtg aac aag agc cgc acg cgc ttc cgc atc cct tgg aag cac 327
Ala Trp Val Asn Lys Ser Arg Thr Arg Phe Arg Ile Pro Trp Lys His
25 30 35 40

ggc cta cgg cag gat gca cag cag gag gat ttc gga atc ttc cag gcc 375
Gly Leu Arg Gln Asp Ala Gln Gln Glu Asp Phe Gly Ile Phe Gln Ala
41 46 51 56

tgg gcc gag gcc act ggt gca tat gtt ccc ggg agg gat aag cca gac 423
Trp Ala Glu Ala Thr Gly Ala Tyr Val Pro Gly Arg Asp Lys Pro Asp
57 62 67 72

ctg cca acc tgg aag agg aat ttc cgc tct gcc ctc aac cgc aaa gaa 471
Leu Pro Thr Trp Lys Arg Asn Phe Arg Ser Ala Leu Asn Arg Lys Glu
73 78 83 88

ggg ttg cgt tta gca gag gac cgg agc aag gac cct cac gac cca cat 519
Gly Leu Arg Leu Ala Glu Asp Arg Ser Lys Asp Pro His Asp Pro His
89 94 99 104

aaa atc tac gag ttt gtg aac tca gga gtt ggg gac ttt tcc cag cca 567
Lys Ile Tyr Glu Phe Val Asn Ser Gly Val Gly Asp Phe Ser Gln Pro
105 110 115 120

gac acc tct ccg gac acc aat ggt gga ggc agt act tct gat acc cag 615
Asp Thr Ser Pro Asp Thr Asn Gly Gly Gly Ser Thr Ser Asp Thr Gln
121 126 131 136

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cca gat ccg gga ccc cca agc ctg gct gta gcc cct gag ccc tgc cct	711
Pro Asp Pro Gly Pro Pro Ser Leu Ala Val Ala Pro Glu Pro Cys Pro	
153 158 163 168	
cag ccc ctg cgg agc ccc agc ttg gac aat ccc act ccc ttc cca aac	759
Gln Pro Leu Arg Ser Pro Ser Leu Asp Asn Pro Thr Pro Phe Pro Asn	
169 174 179 184	
ctg ggg ccc tct gag aac cca ctg aag cgg ctg ttg gtg ccg ggg gaa	807
Leu Gly Pro Ser Glu Asn Pro Leu Lys Arg Leu Leu Val Pro Gly Glu	
185 190 195 200	
gag tgg gag ttc gag gtg aca gcc ttc tac cgg ggc cgc caa gtc ttc	855
Glu Trp Glu Phe Glu Val Thr Ala Phe Tyr Arg Gly Arg Gln Val Phe	
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Gln Gln Thr Ile Ser Cys Pro Glu Gly Leu Arg Leu Val Gly Ser Glu	
217 222 227 232	
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Val Gly Asp Arg Thr Leu Pro Gly Trp Pro Val Thr Leu Pro Asp Pro	
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Gly Met Ser Leu Thr Asp Arg Gly Val Met Ser Tyr Val Arg His Val	
249 254 259 264	
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Leu Ser Cys Leu Gly Gly Gly Leu Ala Leu Trp Arg Ala Gly Gln Trp	
265 270 275 280	
ctc tgg gcc cag cgg ctg ggg cac tgc cac aca tac tgg gca gtg agc	1095
Leu Trp Ala Gln Arg Leu Gly His Cys His Thr Tyr Trp Ala Val Ser	
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Lys Asp Lys Glu Gly Gly Val Phe Asp Leu Gly Pro Phe Ile Val Asp	
313 318 323 328	
ctg att acc ttc acg gaa gga agc gga cgc tca cca cgc tat gcc ctc	1239
Leu Ile Thr Phe Thr Glu Gly Ser Gly Arg Ser Pro Arg Tyr Ala Leu	
329 334 339 344	
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Trp Phe Cys Val Gly Glu Ser Trp Pro Gln Asp Gln Pro Trp Thr Lys	
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 361 366 371 376

gaa atg gcc cgg gta ggg ggt gcc tcc tcc ctg gag aat act gtg gac 1383
 Glu Met Ala Arg Val Gly Gly Ala Ser Ser Leu Glu Asn Thr Val Asp
 377 382 387 392

ctg cac att tcc aac agc cac cca ctc tcc ctc acc tcc gac cag tac 1431
 Leu His Ile Ser Asn Ser His Pro Leu Ser Leu Thr Ser Asp Gln Tyr
 393 398 403 408

aag gcc tac ctg cag gac ttg gtg gag ggc atg gat ttc cag ggc cct 1479
 Lys Ala Tyr Leu Gln Asp Leu Val Glu Gly Met Asp Phe Gln Gly Pro
 409 414 419 424

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 Lys Ala Ala Ala Ala Asn Ala Val Gly Leu Phe Ser Arg Leu Gln Ala
 6 11 16 21

ccc att cca aca gta aga gct tct tcc aca tca cag ccc ttg gat caa 149
 Pro Ile Pro Thr Val Arg Ala Ser Ser Thr Ser Gln Pro Leu Asp Gln
 22 27 32 37

gtg aca ggt tct gtg tgg aac ctg ggt cga ctc aac cat gta gcc ata 197
 Val Thr Gly Ser Val Trp Asn Leu Gly Arg Leu Asn His Val Ala Ile
 38 43 48 53

gca gtg cca gat ttg gaa aag gct gca gca ttt tat aag aat att ctg 245
 Ala Val Pro Asp Leu Glu Lys Ala Ala Ala Phe Tyr Lys Asn Ile Leu
 54 59 64 69

ggg gcc cag gta agt gaa gcg gtc cct ctt cct gaa cat gga gta tct 293
 Gly Ala Gln Val Ser Glu Ala Val Pro Leu Pro Glu His Gly Val Ser

70	75	80	85	
gtt gtt ttt gtc aac ctg gga aat acc aag atg gaa ctg ctt cat cca				341
Val Val Phe Val Asn Leu Gly Asn Thr Lys Met Glu Leu Leu His Pro				
86	91	96	101	
ttg gga cgt gac agt cca att gca ggt ttt ctg cag aaa aac aag gct				389
Leu Gly Arg Asp Ser Pro Ile Ala Gly Phe Leu Gln Lys Asn Lys Ala				
102	107	112	117	
gga gga atg cat cac atc tgc atc gag gtg gat aat att aat gca gct				437
Gly Gly Met His His Ile Cys Ile Glu Val Asp Asn Ile Asn Ala Ala				
118	123	128	133	
gtg atg gat ttg aaa aaa aag aag atc cgc agt cta agt gaa gag gtc				485
Val Met Asp Leu Lys Lys Lys Lys Ile Arg Ser Leu Ser Glu Glu Val				
134	139	144	149	
aaa ata gga gca cat gga aaa cca gtg att ttt ctc cat cct aaa gac				533
Lys Ile Gly Ala His Gly Lys Pro Val Ile Phe Leu His Pro Lys Asp				
150	155	160	165	
tgt ggt gga gtc ctt gtg gaa ctg gag caa gct tga tttt tattttgcaag				583
Cys Gly Gly Val Leu Val Glu Leu Glu Gln Ala *				
166	171	176		
caactaaatt aattgacctg aaaaagccta tcaaatacta tcaaaatgta ctatgacatt				643
gagtccttca ctgcttccat catgtaaaag ttcacagtta aagactgaat tacagaaaga				703
ttaaaatata tacatatata aatacataaa tatgtatatt atttagatta acaaacatat				763
ttgttaattt gaatttgaag aaaatottga ttactaatta cttagggaac attattaaaa				823
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tcg aat ctt gtg ctc caa gct gac cgt tct ctc att gac cgg acc cgc				96
Ser Asn Leu Val Leu Gln Ala Asp Arg Ser Leu Ile Asp Arg Thr Arg				
17	22	27	32	

cgg gat gaa ccc aca gga gag gtg ctg tcc ctt gtt ggg aag ctg gag	144
Arg Asp Glu Pro Thr Gly Glu Val Leu Ser Leu Val Gly Lys Leu Glu	
33 38 43 48	
ggc acc cgt atg gga gac aag gct caa cgg acc aaa ccg cag atg cag	192
Gly Thr Arg Met Gly Asp Lys Ala Gln Arg Thr Lys Pro Gln Met Gln	
49 54 59 64	
gag gaa aga aga gcc aag cga aga aag cgt gat gag gac cgg cat gac	240
Glu Glu Arg Arg Ala Lys Arg Arg Lys Arg Asp Glu Asp Arg His Asp	
65 70 75 80	
atc aac aag atg aag ggt tat act ctg ctg tcc gag ggc att gat gag	288
Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu	
81 86 91 96	
atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc	336
Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr	
97 102 107 112	
tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca	384
Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro	
113 118 123 128	
cgt gat atc ctt tgt ggg gca gct gat gaa gtt cta gct gtt cta aag	432
Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys	
129 134 139 144	
aat gaa aag ctg cgg gac aag gaa agg cga aag gag att gac ctg ctg	480
Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu	
145 150 155 160	
ctg ggt caa aca gat gat acc aga tac cat gtg cta gtg aac ctg ggc	528
Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly	
161 166 171 176	
aaa aag atc aca gac tat ggt gga gat aag gaa atc caa aat atg gat	576
Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp	
177 182 187 192	
gac aac att gat gag aca tac ggt gtg aat gtg cag ttt gag tct gat	624
Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp	
193 198 203 208	
gag gag gaa ggt gat gaa gac gta tac ggg gag gtt cga gaa gag gca	672
Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala	
209 214 219 224	
tct gat gat gac atg gaa ggg gac gag gct gtc gtg cgc tgc acc ctc	720
Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu	
225 230 235 240	
tcc gct aat atg tat gtt gat gaa atc tta gtc tgg tgt gct tct gaa	768
Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu	
241 246 251 256	
ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg	816

353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500

Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val	
257 262 267 272	
ggc tat gga ttg tca agt aga act tgg ttg cag ggt ggt ggc aaa gtg	864
Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val	
273 278 283 288	
atc gag gct ggc aga gac ctg ctc gta gcc tca ggt gaa ctg atg agt	912
Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser	
289 294 299 304	
tcc aag aag aag gat ttg cac cct cgg gat att gat gca ttt tgg ctg	960
Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu	
305 310 315 320	
cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag	1008
Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys	
321 326 331 336	
aag gca gat gaa gta ttg gag att ttg aag acg gcc agt gat gat cgg	1056
Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg	
337 342 347 352	
gaa tgt gaa aat cag ctg gtt ctg ctg ctt ggt ttc aac acc ttt gat	1104
Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp	
353 358 363 368	
ttc att aaa gtg ttg cgg cag cac agg atg atg att tta tac tgt acc	1152
Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr	
369 374 379 384	
ttg ctg gcc agt gca caa agt gaa gct gaa aag gaa agg att atg gga	1200
Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly	
385 390 395 400	
aag atg gaa gct gac cca gag cta tcc aag ttc ctc tac cag ctt cat	1248
Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His	
401 406 411 416	
gaa acc gag aag gag gat ctg atc cga gag gaa agg tcc cgg aga gag	1296
Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu	
417 422 427 432	
cga gtg cgt cag tct cga atg gac aca gat ctg gaa acc atg gat ctc	1344
Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu	
433 438 443 448	
gac cag ggt gga gag gca ctg gct cca cgg cag gtt ctg gac ttg gag	1392
Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu	
449 454 459 464	
gac ctg gtt ttt acc caa ggg agc cac ttt atg gcc aat aaa cgc tgt	1440
Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys	
465 470 475 480	
cag ctt cct gat gga tcc ttc cgt cgc cag cgt aag ggc tat gaa gag	1488
Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu	

481	486	491	496	
gtg cat gtg cct gct	ctg aag ccc aag ccc	ttt ggc tca gaa gaa caa	1536	
Val His Val Pro Ala	Leu Lys Pro Lys Pro	Phe Gly Ser Glu Glu Gln		
497	502	507	512	
ctg ctt cca gtg gaa aag	ctg cca aag tat gcc	cag gct ggg ttt gag	1584	
Leu Leu Pro Val Glu	Lys Leu Pro Lys Tyr	Ala Gln Ala Gly Phe Glu		
513	518	523	528	
ggc ttc aaa aca ctg aat	cgg atc cag agt aag	ctc tac cgt gct gcc	1632	
Gly Phe Lys Thr Leu	Asn Arg Ile Gln Ser	Lys Leu Tyr Arg Ala Ala		
529	534	539	544	
ctt gag acg gat gag aat	ctg ctg ctg tgt gct	cct act ggt gct ggg	1680	
Leu Glu Thr Asp Glu	Asn Leu Leu Leu Cys	Ala Pro Thr Gly Ala Gly		
545	550	555	560	
aag acc aac gtg gcc ctg	atg tgc atg ctc cga	gag att ggg aaa cac	1728	
Lys Thr Asn Val Ala	Leu Met Cys Met Leu	Arg Glu Ile Gly Lys His		
561	566	571	576	
ata aac atg gac ggc acc	atc aat gtg gat gac	ttc aag att atc tac	1776	
Ile Asn Met Asp Gly	Thr Ile Asn Val Asp	Asp Phe Lys Ile Ile Tyr		
577	582	587	592	
att gcc ccc atg cgc tcc	ttg gtg cag gag atg	gtg ggc agc ttt gga	1824	
Ile Ala Pro Met Arg	Ser Leu Val Gln Glu	Met Val Gly Ser Phe Gly		
593	598	603	608	
aag cgc ctg gcc act tat	ggc atc act gtt gct	gaa ctg act ggg gac	1872	
Lys Arg Leu Ala Thr	Tyr Gly Ile Thr Val	Ala Glu Leu Thr Gly Asp		
609	614	619	624	
cac cag ctg tgc aaa gaa	gag atc agt gcc act	cag atc atc gtc tgc	1920	
His Gln Leu Cys Lys	Glu Glu Ile Ser Ala	Thr Gln Ile Ile Val Cys		
625	630	635	640	
acc ccc gag aag tgg gac	atc atc acc cgc aag	ggt ggt gag cgc acc	1968	
Thr Pro Glu Lys Trp	Asp Ile Ile Thr Arg	Lys Gly Gly Glu Arg Thr		
641	646	651	656	
tac acc cag ctg gtg cgg	ctc atc att ctg gat	gag att cat ctt ctc	2016	
Tyr Thr Gln Leu Val	Arg Leu Ile Ile Leu	Asp Glu Ile His Leu Leu		
657	662	667	672	
cac gat gac aga ggt cct	gtc tta gaa gct tta	gtg gcc agg gcc atc	2064	
His Asp Asp Arg Gly	Pro Val Leu Glu Ala	Leu Val Ala Arg Ala Ile		
673	678	683	688	
cga aac att gag atg acc	caa gag gat gtc cga	ctc att ggt ctc agt	2112	
Arg Asn Ile Glu Met	Thr Gln Glu Asp Val	Arg Leu Ile Gly Leu Ser		
689	694	699	704	
gcc acc cta ccc aac tat	gaa gat gta gcc acc	ttt cta cgt gtt gac	2160	
Ala Thr Leu Pro Asn	Tyr Glu Asp Val Ala	Thr Phe Leu Arg Val Asp		
705	710	715	720	

cct gcc aag ggt ctc ttt tac ttt gac aac agc ttc cgt cca gtg cct	2208
Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro Val Pro	
721 726 731 736	
ctg gaa cag aca tat gtg ggt atc aca gag aaa aaa gct atc aag cgt	2256
Leu Glu Gln Thr Tyr Val Gly Ile Thr Glu Lys Lys Ala Ile Lys Arg	
737 742 747 752	
ttc cag atc atg aat gaa ata gtc tat gaa aaa atc atg gaa cat gct	2304
Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu His Ala	
753 758 763 768	
gga aaa aat cag gtg ctc gtg ttt gtc cat tct cgc aaa gaa act ggg	2352
Gly Lys Asn Gln Val Leu Val Phe Val His Ser Arg Lys Glu Thr Gly	
769 774 779 784	
aag aca gca agg gca atc cgt gac atg tgt ctg gag aag gac act ttg	2400
Lys Thr Ala Arg Ala Ile Arg Asp Met Cys Leu Glu Lys Asp Thr Leu	
785 790 795 800	
ggt ctg ttt ctt cgc gag ggt tct gcc tcc act gaa gtc ctt cgt aca	2448
Gly Leu Phe Leu Arg Glu Gly Ser Ala Ser Thr Glu Val Leu Arg Thr	
801 806 811 816	
gaa gca gag cag tgc aag aac ttg gag ctg aag gat ctt ttg ccc tat	2496
Glu Ala Glu Gln Cys Lys Asn Leu Glu Leu Lys Asp Leu Leu Pro Tyr	
817 822 827 832	
ggc ttt gct att cat cat gca ggc atg act aga gtt gac cga aca ctt	2544
Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg Thr Leu	
833 838 843 848	
gta gaa gat ctt ttt ggt gac aag cat att cag gtt tta gtt tcc acc	2592
Val Glu Asp Leu Phe Gly Asp Lys His Ile Gln Val Leu Val Ser Thr	
849 854 859 864	
gca act ctg gcg tgg ggt gta aat ctt cct gca cat aca gtc atc att	2640
Ala Thr Leu Ala Trp Gly Val Asn Leu Pro Ala His Thr Val Ile Ile	
865 870 875 880	
aaa ggt acc caa gtg tac agt cca gag aag ggg cgt tgg aca gag ctg	2688
Lys Gly Thr Gln Val Tyr Ser Pro Glu Lys Gly Arg Trp Thr Glu Leu	
881 886 891 896	
gga gca ctg gat atc ctg cag atg ctg ggc cgt gct gga cgg ccg cag	2736
Gly Ala Leu Asp Ile Leu Gln Met Leu Gly Arg Ala Gly Arg Pro Gln	
897 902 907 912	
tat gac acc aag ggt gaa ggc atc ctc atc aca tcc cat ggg gag ctc	2784
Tyr Asp Thr Lys Gly Glu Gly Ile Leu Ile Thr Ser His Gly Glu Leu	
913 918 923 928	
cag tac tac ctc tcc ctc ctc aac cag cag ctg cct atc gag agc cag	2832
Gln Tyr Tyr Leu Ser Leu Leu Asn Gln Gln Leu Pro Ile Glu Ser Gln	
929 934 939 944	

atg gtc tcc aag ctg cct gac atg ctc aat gcg gaa att gtt ctg ggc	2880
Met Val Ser Lys Leu Pro Asp Met Leu Asn Ala Glu Ile Val Leu Gly	
945 950 955 960	
aat gtc cag aat gca aag gat gca gtg aac tgg ctg ggc tat gcc tac	2928
Asn Val Gln Asn Ala Lys Asp Ala Val Asn Trp Leu Gly Tyr Ala Tyr	
961 966 971 976	
cta tac atc cga atg ctc cgg tcc cct acc ctc tat ggc att tct cat	2976
Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile Ser His	
977 982 987 992	
gat gac ctc aag gga gat ccc ttg ctg gac cag cgc cga ctc gat ctt	3024
Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu Asp Leu	
993 998 1003 1008	
gtt cac act gct gcc ttg atg ctg gac aag aac aat ctg gtc aag tac	3072
Val His Thr Ala Ala Leu Met Leu Asp Lys Asn Asn Leu Val Lys Tyr	
1009 1014 1019 1024	
gac aag aag aca ggc aac ttc cag gtg aca gaa ctt ggc cgg ata gca	3120
Asp Lys Lys Thr Gly Asn Phe Gln Val Thr Glu Leu Gly Arg Ile Ala	
1025 1030 1035 1040	
agt cac tac tat atc acc aat gat act gtg cag acc tac aac cag ctg	3168
Ser His Tyr Tyr Ile Thr Asn Asp Thr Val Gln Thr Tyr Asn Gln Leu	
1041 1046 1051 1056	
ctg aag cct act ctg agt gag att gag ctt ttc cga gtg ttc tcc ttg	3216
Leu Lys Pro Thr Leu Ser Glu Ile Glu Leu Phe Arg Val Phe Ser Leu	
1057 1062 1067 1072	
tcc tca gag ttc aag aac atc act gta aga gag gag gag aag ctg gag	3264
Ser Ser Glu Phe Lys Asn Ile Thr Val Arg Glu Glu Lys Leu Glu	
1073 1078 1083 1088	
ctg cag aag ttg ctg gag aga gtg ccc atc cct gta aag gag agc att	3312
Leu Gln Lys Leu Leu Glu Arg Val Pro Ile Pro Val Lys Glu Ser Ile	
1089 1094 1099 1104	
gag gaa ccc agc gct aag atc aac gtg ctt ctc caa gcc ttc atc tca	3360
Glu Glu Pro Ser Ala Lys Ile Asn Val Leu Leu Gln Ala Phe Ile Ser	
1105 1110 1115 1120	
cag ctg aaa ctc gaa ggc ttt gcg ctg atg gct gac atg gtg tat gtg	3408
Gln Leu Lys Leu Glu Gly Phe Ala Leu Met Ala Asp Met Val Tyr Val	
1121 1126 1131 1136	
acc cag tcg gct ggc cgg ttg atg cgt gca atc ttc gaa att gtc ctg	3456
Thr Gln Ser Ala Gly Arg Leu Met Arg Ala Ile Phe Glu Ile Val Leu	
1137 1142 1147 1152	
aac cga ggt tgg gca cag ctt aca gat aag acc ctg aat ctc tgc aag	3504
Asn Arg Gly Trp Ala Gln Leu Thr Asp Lys Thr Leu Asn Leu Cys Lys	
1153 1158 1163 1168	
atg att gac aag cgc atg tgg cag tcc atg tgt cct ctt cgc cag ttc	3552

Met Ile Asp Lys Arg Met Trp Gln Ser Met Cys Pro Leu Arg Gln Phe	
1169 1174 1179 1184	
cga aaa ctt cct gag gaa gta gtg aag aag att gag aag aaa aac ttc	3600
Arg Lys Leu Pro Glu Glu Val Val Lys Lys Ile Glu Lys Lys Asn Phe	
1185 1190 1195 1200	
ccc ttt gag cgg ctg tat gac ttg aat cat aat gag ata ggt gaa ctt	3648
Pro Phe Glu Arg Leu Tyr Asp Leu Asn His Asn Glu Ile Gly Glu Leu	
1201 1206 1211 1216	
att cga atg ccg aag atg ggg aag acc atc cac aag tat gtc cat ctt	3696
Ile Arg Met Pro Lys Met Gly Lys Thr Ile His Lys Tyr Val His Leu	
1217 1222 1227 1232	
ttc ccc aag ttg gag ttg tca gtg cac ctg cag cct att aca cgc tct	3744
Phe Pro Lys Leu Glu Leu Ser Val His Leu Gln Pro Ile Thr Arg Ser	
1233 1238 1243 1248	
acg ctg aaa gta gag ctg act atc aca cca gat ttc cag tgg gat gaa	3792
Thr Leu Lys Val Glu Leu Thr Ile Thr Pro Asp Phe Gln Trp Asp Glu	
1249 1254 1259 1264	
aag gtc cat ggt tgc tca gag gca ttt tgg att ctg gtg gag gat gtg	3840
Lys Val His Gly Ser Ser Glu Ala Phe Trp Ile Leu Val Glu Asp Val	
1265 1270 1275 1280	
gac agc gag gtg att ctg cac cat gaa tat ttt ctg ctg aag gcc aag	3888
Asp Ser Glu Val Ile Leu His His Glu Tyr Phe Leu Leu Lys Ala Lys	
1281 1286 1291 1296	
tat gcc cag gat gag cac ctg atc aca ttc ttt gtt cca gtc ttt gaa	3936
Tyr Ala Gln Asp Glu His Leu Ile Thr Phe Phe Val Pro Val Phe Glu	
1297 1302 1307 1312	
cca cta cct cct cag tac ttc att cga gta gtg tct gat cgc tgg ctg	3984
Pro Leu Pro Pro Gln Tyr Phe Ile Arg Val Val Ser Asp Arg Trp Leu	
1313 1318 1323 1328	
tct tgt gag acg cag cta cct gtc tcc ttc cgg cat ctg atc cta cca	4032
Ser Cys Glu Thr Gln Leu Pro Val Ser Phe Arg His Leu Ile Leu Pro	
1329 1334 1339 1344	
gag aag tac cca cct cca act gaa ctg ttg gac ctg cag cca ttg cct	4080
Glu Lys Tyr Pro Pro Pro Thr Glu Leu Leu Asp Leu Gln Pro Leu Pro	
1345 1350 1355 1360	
gtg tct gct ctg aga aac agt gct ttt gag agc ctt tac caa gat aaa	4128
Val Ser Ala Leu Arg Asn Ser Ala Phe Glu Ser Leu Tyr Gln Asp Lys	
1361 1366 1371 1376	
ttt cct ttc ttc aat ccc atc cag act caa gta ttt aat acc gtg tac	4176
Phe Pro Phe Phe Asn Pro Ile Gln Thr Gln Val Phe Asn Thr Val Tyr	
1377 1382 1387 1392	
aac agt gat gat aac gtg ttt gtg ggg gcc ccc acg ggc agc ggg aag	4224
Asn Ser Asp Asp Asn Val Phe Val Gly Ala Pro Thr Gly Ser Gly Lys	

1393	1398	1403	1408	
act atc tgc gcg gag ttt gcc atc ctt cgg atg ctg ctg cag aat tct				4272
Thr Ile Cys Ala Glu Phe Ala Ile Leu Arg Met Leu Leu Gln Asn Ser				
1409	1414	1419	1424	
gag gga cgc tgt gtc tac att acc cct atg agg ctc tgg cag gag cag				4320
Glu Gly Arg Cys Val Tyr Ile Thr Pro Met Arg Leu Trp Gln Glu Gln				
1425	1430	1435	1440	
gta tac atg gac tgg tat gag aag ttt cag gac agg ctc aac aag aag				4368
Val Tyr Met Asp Trp Tyr Glu Lys Phe Gln Asp Arg Leu Asn Lys Lys				
1441	1446	1451	1456	
gtc gtg ctg ctg acg ggg gag acc agc aca gac ctg aag ctc ctg ggc				4416
Val Val Leu Leu Thr Gly Glu Thr Ser Thr Asp Leu Lys Leu Leu Gly				
1457	1462	1467	1472	
aaa ggc aac atc atc atc agt acc cct gag aag tgg gac atc ctc tct				4464
Lys Gly Asn Ile Ile Ile Ser Thr Pro Glu Lys Trp Asp Ile Leu Ser				
1473	1478	1483	1488	
cgg agg tgg aag cag cgc aag aac gtc cag aac att aac ctc ttt gtg				4512
Arg Arg Trp Lys Gln Arg Lys Asn Val Gln Asn Ile Asn Leu Phe Val				
1489	1494	1499	1504	
gtg gat gag gtc cac ctt att ggg ggc gag aat ggg cct gtc ttg gaa				4560
Val Asp Glu Val His Leu Ile Gly Gly Glu Asn Gly Pro Val Leu Glu				
1505	1510	1515	1520	
gtg atc tgc tcc cgg atg cgc tac atc tcc tcc cag att gag cgg ccc				4608
Val Ile Cys Ser Arg Met Arg Tyr Ile Ser Ser Gln Ile Glu Arg Pro				
1521	1526	1531	1536	
att cgc att gtg gca ctt agc tcc tca ctc tcc aat gcc aag gat gtg				4656
Ile Arg Ile Val Ala Leu Ser Ser Ser Leu Ser Asn Ala Lys Asp Val				
1537	1542	1547	1552	
gct cac tgg ctg ggc tgc agt gcc acc tcc acc ttc aac ttc cat cct				4704
Ala His Trp Leu Gly Cys Ser Ala Thr Ser Thr Phe Asn Phe His Pro				
1553	1558	1563	1568	
aat gtg cgc cct gta cct ttg gaa ctg cac atc cag ggc ttc aac atc				4752
Asn Val Arg Pro Val Pro Leu Glu Leu His Ile Gln Gly Phe Asn Ile				
1569	1574	1579	1584	
agt cac aca cag act cgc ctg ctc tct atg gcc aag cct gtg ttc cat				4800
Ser His Thr Gln Thr Arg Leu Leu Ser Met Ala Lys Pro Val Phe His				
1585	1590	1595	1600	
gct atc acc aaa cac tca ccc aag aag cct gtc atc gtt ttt gtc cca				4848
Ala Ile Thr Lys His Ser Pro Lys Lys Pro Val Ile Val Phe Val Pro				
1601	1606	1611	1616	
tct cgt aag cag acc cgc ctc act gca ata gac atc ctc act acc tgt				4896
Ser Arg Lys Gln Thr Arg Leu Thr Ala Ile Asp Ile Leu Thr Thr Cys				
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Ala Ala Asp Ile Gln Arg Gln Arg Phe Leu His Cys Thr Glu Lys Asp	
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Leu Ile Pro Tyr Leu Glu Lys Leu Ser Asp Ser Thr Leu Lys Glu Thr	
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Val Ala Ser Arg Ser Leu Cys Trp Gly Met Asn Val Ala Ala His Leu	
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Val Ile Ile Met Asp Thr Leu Tyr Tyr Asn Gly Lys Ile His Ala Tyr	
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Val Asp Tyr Pro Ile Tyr Asp Val Leu Gln Met Val Gly His Ala Asn	
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Trp Thr Phe Leu Tyr Arg Arg Met Thr Gln Asn Pro Asn Tyr Tyr Asn	
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Ala Glu Tyr Glu Asn Ile Pro Ile Arg His His Glu Asp Asn Leu Leu	
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Arg Gln Leu Ala Gln Lys Val Pro His Lys Leu Asn Asn Pro Lys Phe	
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Asn Asp Pro His Val Lys Thr Asn Leu Leu Leu Gln Ala His Leu Ser	
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Asn Gly Trp Leu Ser Pro Ala Leu Ala Ala Met Glu Leu Ala Gln Met	
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Val Thr Gln Ala Met Trp Ser Glu Asp Ser Tyr Leu Arg Arg Leu Pro	
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Pro Phe Pro Ser Gly Leu Phe Lys Arg Cys Thr Asp Lys Gly Val Glu	
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Leu Gln Leu Thr Asp Ser Gln Ile Ala Asp Val Ala Arg Phe Cys Asn	
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Arg Tyr Pro Asn Ile Glu Leu Ser Tyr Glu Val Val Asp Lys Asp Ser	
2065 2070 2075 2080	
atc cgc agt ggc gga cca gtt gtg gtg cta gtg caa ctg gag cga gag	6288

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Glu	Glu	Val	Thr	Gly	Pro	Val	Ile	Ala	Pro	Leu	Phe	Pro	Gln	Lys	Arg		
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gaa	gag	ggc	tgg	tgg	gtt	gtg	att	gga	gac	gcc	aag	tcc	aac	agc	ctc	6384	
Glu	Glu	Gly	Trp	Trp	Val	Val	Ile	Gly	Asp	Ala	Lys	Ser	Asn	Ser	Leu		
2113					2118					2123					2128		
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Ile	Ser	Ile	Lys	Arg	Leu	Thr	Leu	Gln	Gln	Lys	Ala	Lys	Val	Lys	Leu		
2129					2134					2139					2144		
gac	ttt	gtg	gcc	cca	gcc	aca	ggt	ggc	cgc	cac	aat	acc	ctg	tac	ttc	6480	
Asp	Phe	Val	Ala	Pro	Ala	Thr	Gly	Gly	Arg	His	Asn	Thr	Leu	Tyr	Phe		
2145					2150					2155					2160		
atg	agt	gac	gca	tac	atg	gga	tgt	gac	cag	gag	tat	aag	ttc	agt	gtg	6528	
Met	Ser	Asp	Ala	Tyr	Met	Gly	Cys	Asp	Gln	Glu	Tyr	Lys	Phe	Ser	Val		
2161					2166					2171					2176		
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cgg gat gaa ccc aca gga gag gtg ctg tcc ctt gtt ggg aag ctg gag Arg Asp Glu Pro Thr Gly Glu Val Leu Ser Leu Val Gly Lys Leu Glu 33 38 43 48																144
ggc acc cgt atg gga gac aag gct caa cgg acc aaa ccg cag atg cag Gly Thr Arg Met Gly Asp Lys Ala Gln Arg Thr Lys Pro Gln Met Gln 49 54 59 64																192

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65 70 75 80	
atc aac aag atg aag ggt tat act ctg ctg tcg gag ggc att gat gag	288
Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu	
81 86 91 96	
atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc	336
Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr	
97 102 107 112	
tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca	384
Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro	
113 118 123 128	
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Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys	
129 134 139 144	
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Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu	
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Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly	
161 166 171 176	
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Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp	
177 182 187 192	
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Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp	
193 198 203 208	
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Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala	
209 214 219 224	
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Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu	
225 230 235 240	
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Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu	
241 246 251 256	
ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg	816
Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val	
257 262 267 272	
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Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val	
273 278 283 288	
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1116

Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser	
289 294 299 304	
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Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu	
305 310 315 320	
cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag	1008
Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys	
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Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg	
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Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp	
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Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr	
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Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly	
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Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His	
401 406 411 416	
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Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu	
417 422 427 432	
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Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu	
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Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu	
449 454 459 464	
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Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys	
465 470 475 480	
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Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu	
481 486 491 496	
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Val His Val Pro Ala Leu Lys Pro Lys Pro Phe Gly Ser Glu Glu Gln	
497 502 507 512	
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Leu Leu Pro Val Glu Lys Leu Pro Lys Tyr Ala Gln Ala Gly Phe Glu	

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Gly Phe Lys Thr Leu Asn Arg Ile Gln Ser Lys Leu Tyr Arg Ala Ala				
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ctt gag acg gat gag aat ctg ctg ctg tgt gct cct act ggt gct ggg				1680
Leu Glu Thr Asp Glu Asn Leu Leu Leu Cys Ala Pro Thr Gly Ala Gly				
545	550	555	560	
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Lys Thr Asn Val Ala Leu Met Cys Met Leu Arg Glu Ile Gly Lys His				
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ata aac atg gac ggc acc atc aat gtg gat gac ttc aag att atc tac				1776
Ile Asn Met Asp Gly Thr Ile Asn Val Asp Asp Phe Lys Ile Ile Tyr				
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att gcc ccc atg cgc tcc ttg gtg cag gag atg gtg ggc agc ttt gga				1824
Ile Ala Pro Met Arg Ser Leu Val Gln Glu Met Val Gly Ser Phe Gly				
593	598	603	608	
aag cgc ctg gcc act tat ggc atc act gtt gct gaa ctg act ggg gac				1872
Lys Arg Leu Ala Thr Tyr Gly Ile Thr Val Ala Glu Leu Thr Gly Asp				
609	614	619	624	
cac cag ctg tgc aaa gaa gag atc agt gcc act cag atc atc gtc tgc				1920
His Gln Leu Cys Lys Glu Glu Ile Ser Ala Thr Gln Ile Ile Val Cys				
625	630	635	640	
acc ccc gag aag tgg gac atc atc acc cgc aag gtg gat gag att cat				1968
Thr Pro Glu Lys Trp Asp Ile Ile Thr Arg Lys Val Asp Glu Ile His				
641	646	651	656	
ctt ctc cac gat gac aga ggt cct gtc tta gaa gct tta gtg gcc agg				2016
Leu Leu His Asp Asp Arg Gly Pro Val Leu Glu Ala Leu Val Ala Arg				
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Ala Ile Arg Asn Ile Glu Met Thr Gln Glu Asp Val Arg Leu Ile Gly				
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ctc agt gcc acc cta ccc aac tat gaa gat gta gcc acc ttt cta cgt				2112
Leu Ser Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Thr Phe Leu Arg				
689	694	699	704	
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Val Asp Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro				
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Lys Arg Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu				
737	742	747	752	

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Pro Tyr Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg	
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Ala Tyr Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile	
961 966 971 976	

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Ser His Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu	
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Glu Leu Ile Arg Met Pro Lys Met Gly Lys Thr Ile His Lys Tyr Val	
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Pro Ser Thr His Ser Lys Thr Ser Ala Val Ser Ser Gln Ala Asn Ser	
586 591 596 601	
cag ccc cct gta cag gtt tct gtg aag act caa gta tct gta aca gct	1994
Gln Pro Pro Val Gln Val Ser Val Lys Thr Gln Val Ser Val Thr Ala	
602 607 612 617	
gct att cca cac ctg aaa act tca acg ttg cct cct ttg ccc ctc cca	2042
Ala Ile Pro His Leu Lys Thr Ser Thr Leu Pro Pro Leu Pro Leu Pro	
618 623 628 633	
ccc tta tta cct gga ggt gat gac atg gat agt cca aaa gaa act ctt	2090
Pro Leu Leu Pro Gly Gly Asp Asp Met Asp Ser Pro Lys Glu Thr Leu	
634 639 644 649	
cct tca aaa cct gtg aag aaa gag aag gaa cag agg aca cgt cac tta	2138
Pro Ser Lys Pro Val Lys Lys Glu Lys Glu Gln Arg Thr Arg His Leu	
650 655 660 665	
ctc aca gac ctt cct ctc cct cca gag ctc cct ggt gga gat ctg tct	2186

Leu Thr Asp Leu Pro	Leu Pro Pro Glu Leu Pro Gly Gly Asp Leu Ser	
666	671 676 681	
ccc cca gac tct cca	gaa cca aag gca atc	2234
Pro Pro Asp Ser Pro	Glu Pro Lys Ala Ile	
682	687 692 697	
tat aaa aag aga cca	aaa att tgt tgt cct	2282
Tyr Lys Lys Arg Pro	Lys Ile Cys Cys Pro	
698	703 708 713	
caa aca gaa agc gac	tgg ggg aaa cgc tgt	2330
Gln Thr Glu Ser Asp	Trp Gly Lys Arg Cys	
714	719 724 729	
att ggg att att gga	gaa gga acc tat ggc	2378
Ile Gly Ile Ile Gly	Glu Gly Thr Tyr Gly	
730	735 740 745	
gac aaa gac aca gga	gaa cta gtg gct ctg	2426
Asp Lys Asp Thr Gly	Glu Leu Val Ala Leu	
746	751 756 761	
aat gag aaa gag ggc	ttc cca atc aca gcc	2474
Asn Glu Lys Glu Gly	Phe Pro Ile Thr Ala	
762	767 772 777	
ctt cgt cag tta atc	cac cga agt gtt gtt	2522
Leu Arg Gln Leu Ile	His Arg Ser Val Val	
778	783 788 793	
aca gat aaa caa gat	gca ctg gat ttc aag	2570
Thr Asp Lys Gln Asp	Ala Leu Asp Phe Lys	
794	799 804 809	
tac ctt gta ttt gag	tat atg gac cat gac	2618
Tyr Leu Val Phe Glu	Tyr Met Asp His Asp	
810	815 820 825	
tct ggt ttg gtg cac	ttt tct gag gac cat	2666
Ser Gly Leu Val His	Phe Ser Glu Asp His	
826	831 836 841	
cag cta atg gaa gga	ttg gaa tac tgt cac	2714
Gln Leu Met Glu Gly	Leu Glu Tyr Cys His	
842	847 852 857	
cgg gat att aag tgt	tct aac att ttg ctg	2762
Arg Asp Ile Lys Cys	Ser Asn Ile Leu Leu	
858	863 868 873	
aaa cta gca gat ttt	gga ctt gct cgg ctc	2810
Lys Leu Ala Asp Phe	Gly Leu Ala Arg Leu	
874	879 884 889	
cgc cct tac aca aac	aaa gtc att act ttg	2858
Arg Pro Tyr Thr Asn	Lys Val Ile Thr Leu	
	Trp Tyr Arg Pro Pro	
	Glu	